AMERICAN GAS ASSOCIATION MONTHLY

ALL GAS COOKERY AT NATIONAL FOOD SHOW

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ALEXANDER FORWARD

American Gas Industry Through Polish Eyes

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RICHARD SCHNEIDEWIND

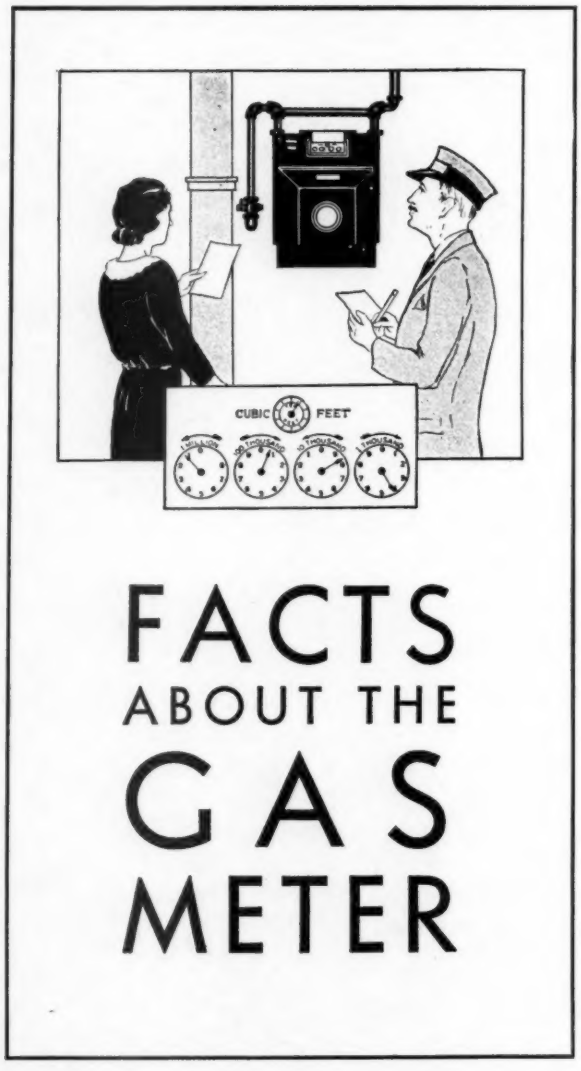
The Beal Medal —1897-1932

H. W. HARTMAN

A. G. A. DEVELOPS PROGRAM OF ACTION TO PROMOTE GAS COOKERY

January, 1933

Let This Booklet Tell Your Customers How Their Meters Work



TRUTHS About the Meter," proved one of the most popular publications ever produced by the American Gas Association. It was purchased in large quantities by scores of member companies and distributed to their customers.

Now the American Gas Association offers a revised edition entitled "Facts About the Gas Meter." Textually and typographically the work was redesigned, not only to bring it up-to-date, but also to modernize and make its appearance more attractive. It is just the thing for an envelope stuffer.

These new booklets are now available, in any quantity, at 2 cents a copy, including purchaser's imprint on the back outside cover on all orders of 200 or more.

If you haven't seen a copy of "Facts About the Gas Meter," ask for one. It will be mailed to you without cost.

AMERICAN GAS ASSOCIATION
420 Lexington Avenue, New York, N. Y.

AMERICAN GAS ASSOCIATION MONTHLY

VOLUME XV | JANUARY, 1933 | NUMBER 1

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The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein.

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"EVERMORE"

IN my dark, Plutonian basement, near the frost-bound, coal-hole casement,
Perched one night Poe's famous Raven, known to me from school-day lore.
"Speak, thou pessimistic croaker! Shall I always be a stoker?
Never cast aside the poker, though the job is such a bore?
Shall I ever feed the furnace? It is such a beastly bore."
Quoth the Raven: "Nevermore!"
"Glorious bird!—did you say 'Never'? Can I break the thrall forever?
Shake it down nor rake it over, turn the damper nevermore?
With the winter snow still drifting, am I finished scuttle-shifting?
Am I done with cinder sifting, while the northern tempests roar?"
"Ask the Gasman," quoth the Raven, flitting through my cellar door—
"Ask the Gasman!"—Nothing more.
So I asked him, in a letter, and the Gasman sent a better
Furnace for my happy household than I'd ever seen before.
Now my toil is turned to pleasure; how shall I compute or measure
All my hours of happy leisure ere the wintry days be o'er?
Shall I live in comfort ever, till the wintry days be o'er?
Quoth the Gasman: "Evermore."

The above anonymous version of Poe's Raven appeared in the November issue of "Gas Progress" published by the Consumer's Gas Company of Toronto, Canada.

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

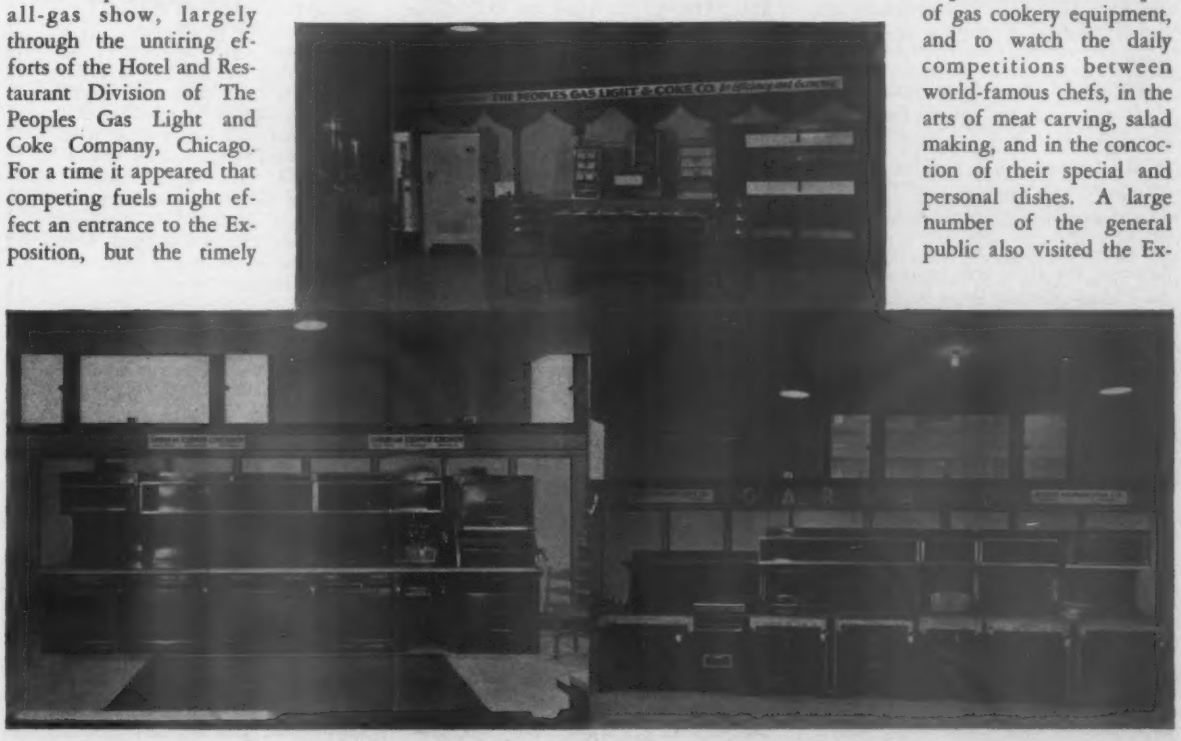
VOLUME XV | JANUARY, 1933 | NUMBER 1

All Gas Cookery At National Food Show

ANOTHER clean sweep for gas cookery was recorded at the National Food, Cookery and Allied Trades Exposition, held at Chicago, Ill., from November 28 to December 3.

The Exposition was an all-gas show, largely through the untiring efforts of the Hotel and Restaurant Division of The Peoples Gas Light and Coke Company, Chicago. For a time it appeared that competing fuels might effect an entrance to the Exposition, but the timely efforts of The Peoples Company, with the cooperation of the American Gas Association and the manufacturers of gas-burning restaurant equipment, combined to present a united front of "all gas" appliances to the visitors.

More than 11,000 people, most of them intimately connected with the hotel and restaurant business, crowded the corridors of the Palmer House to inspect the latest triumphs of gas cookery equipment, and to watch the daily competitions between world-famous chefs, in the arts of meat carving, salad making, and in the concoction of their special and personal dishes. A large number of the general public also visited the Ex-



Three views of Gas Exhibits at National Food Show held in Chicago last month

position, attracted by the wide publicity given it in the Chicago newspapers.

The Exposition was formally opened at 10:30 Monday morning, November 28, by Dr. Herman N. Bundesen, health commissioner of Chicago, and from that time until the closing hour late on Saturday, the show attracted capacity crowds, setting a record as one of the most successful exhibits of its kind ever staged. Hotel stewards and managers, restaurant owners and chefs, and representatives of clubs, schools and hospitals, inspected the latest in gas-fired cookery equipment at the different booths in the exposition hall.

The importance of keeping a group of actual and potential buyers such as these convinced that gas is the best way to cook food cannot be overestimated. The Exposition gathered together a group of buyers, a selected market, which it would have been impossible to attract in any other way. The fact that gas cookery was so well represented at the Exposition will prove of real dollars-and-cents value to gas companies and to manufacturers of gas cooking equipment throughout the country, it is confidently believed by those who took part in the show.

The daily competition among the chefs was conducted on gas-fired cooking equipment connected and installed in the center of the exhibition hall. These competitions never failed to draw large crowds of spectators. The government of France, traditional home of the chef, was represented by the Chicago consul, Rene Weiller, who awarded the French government medal for excellence in cookery to Pierre Berard, supervising chef of the Merchandise Mart restaurant, Chicago, and director of the Exposition, and similar awards were made by the various Chicago hotels for excellence in other competitions.

In addition to the bake oven, range and broiler on which the competing chefs prepared their dishes, other gas appliances were displayed in booths taken by manufacturers. In the booth of The Peoples Gas Light and Coke Company, the new Blodgett individual deck control bake oven was a center of interest and a Savory Toaster and Savory Broiler were operated by demonstrators, and "packed 'em in" from 10 a.m. to 10 p.m. Other appliances displayed in The Peoples Company booth were a Perfex automatic coffee urn, the Electrolux refrigerator and ice cream cabinet, and the Rex automatic water heater—an excellent demonstration to the visiting hotel and restaurant managers and stewards of how completely gas equipment can take care of their heating needs.

The Standard Gas Equipment Corporation, with its display of heavy-duty hotel and restaurant "Vulcan" ranges and broilers, attracted a host of real "live" prospects. The Detroit-Michigan Stove Company, with its exhibit of "Garland" ranges, broilers, and deep-fat fryers, also had the crowds all day every day, and both of these manufacturers of heavy-duty commercial gas appliances were sur-

(Continued on page 34)

Gas To Be Feature At Chicago Exposition

WHEN the Century of Progress International Exposition opens its gates to the world, in Chicago, Ill., on June 1, gas will be among the outstanding industries represented.

By authority of the Executive Board, a contract for space in the Home and Industrial Arts Building has been executed by the American Gas Association. Here will be shown the progress of our industry for the past century. This display will visualize the great strides made in the advancement of the natural and manufactured gas industry in production, distribution and domestic, commercial and industrial utilization. The theme of the exhibit will be "Gas—the Ideal Fuel for Home and Factory."

President Arthur Hewitt has appointed a special committee to undertake the responsibility of arranging details and completing this exhibit. It is composed of the following members:

R. B. Harper, vice-president of The Peoples Gas Light and Coke Company, Chicago, Chairman; F. J. Rutledge, United Gas Improvement Company, Philadelphia; C. J. Ramsburg, The Koppers Co., Pittsburgh, Pa.; B. J. Mullaney, The Peoples Gas Light and Coke Company, Chicago, Ill.; N. T. Sellman, the Consolidated Gas Company of New York; President Hewitt, ex-officio, and C. W. Berghorn, secretary.

The remainder of the space in the same building has been engaged by a group of manufacturer company members. These include the Surface Combustion Company, American Stove Company, Bryant Heater & Manufacturing Company, Holland Furnace Company, Servel, Inc.

It will in effect, therefore, be a gas building opposite the Home and Industrial Arts Building, eight model homes are being erected, demonstrating the newest in homemaking and featuring the use of gas for various domestic purposes.

It is appropriate that the American Gas Association will hold its annual meeting the last week in September in Chicago.

In addition to those companies whose exhibits will be seen in the Home and Industrial Arts Building, several gas appliance manufactures will have displays in space engaged for the "Porcelain Enamel Parade."

The gas exhibit will be embraced with a group of other displays which is expected to write a new chapter to the story of home building.

The model homes exhibit will demonstrate under practical conditions the solution to certain housing problems. It will introduce new building materials, new uses for traditional materials, new trends in architecture, home furnishing, heating, lighting, equipment and decoration.

Each of the houses exhibited in this show will be built of a different material. Architecturally, they will be departures from anything done before in America. Two or three will be fabricated in a factory and assembled on the lot. Several will be air-conditioned. Each will present a new solution to the problems of the kitchen and the laundry and introduce new means of doing heavy household tasks. Each house will be provided with modern furnishings and decoration. Each will utilize every foot of space for the comfort and convenience of its dwellers. In addition, the houses will be equipped with new types of heating plants, utilizing everything from gas to coal, oil and electricity. Each house, it is expected, will be priced considerably below what the average American home owner has been accustomed to pay.

Niagara Hudson Starts New Promotional Plan

OPERATING companies of the Niagara Hudson System have announced a new promotional plan for the development of residential and farm markets, coupled with work in cooperation with merchants who sell electrical and gas appliances. The new plan, which provides for the eventual discontinuance of the sale of electrical and gas appliances by the System operating companies and the concentrating of efforts on developing complete home use of gas and electricity, has been worked out, it is announced by the company, after careful study of the market and analysis of many utility plans in operation throughout the country. The plan becomes effective progressively by districts throughout the territory served starting on January 1, 1933 in Utica and Glens Falls. Other districts will be put under the new plan successively at intervals throughout the year but not until experience in the initial districts indicates a satisfactory solution to the problems anticipated and until manufacturers, jobbers and distributors have had time to build up additional retail outlets. No schedule is being fixed for the completion of the transition, which may take many months, the companies preferring to allow the new program to develop normally rather than to force it in accordance with arbitrary time limits.

In explaining the new service plan, Merrill E. Skinner, Chairman of the Sales Promotion Committee, points out that the companies plan intensive promotional work to be undertaken for the development of complete home use of electricity and gas, by offering consulting service to customers on adequate wiring, modern home making, and home lighting. The new service plan contemplates an intensive training course for the companies' field representatives to help customers on electrical and gas matters in an impartial manner and without obligation in their work with housewives. Company stores will be converted into continuous electric and gas appliance shows with practically all standard makes of appliances on display which are offered for sale locally so that customers may compare all makes and see demonstrations. Appliance selling, however, will be done by the local appliance merchants.

Virgil Jordan Heads Industrial Board

VIRGIL JORDAN of New York who was one of the principal speakers at the last annual meeting of the Manufacturers Section of the American Gas Association in Cincinnati, Ohio, has been designated president of the National Industrial Conference Board, succeeding the late Magnus W. Alexander, it was announced by John Henry Hammond, chairman of the executive committee. For the past three years economic advisor to the McGraw-Hill Publishing Company, Mr. Jordan was director of research of the board from 1920 to 1929.

Composed of ninety-one leading business executives, including representatives of affiliated national and State industrial associations, Federal units and individual concerns, the board was established in 1916. It provides a private forum for discussion of economic and social problems of American industry and serves as a national fact-finding agency to assemble the essential information relating to these problems as a basis for discussion.

Mr. Jordan, it was announced, was expected shortly to make known plans for important new activities of the board in connection with the current business situation. In accepting the appointment Mr. Jordan said, in part:

"In the next few years American industry will face some of the most difficult problems of its history and will be compelled to make many crucial decisions which will profoundly affect its future. It is vitally important that it be prepared to deal with these problems and to make these decisions on the basis of intimate and up-to-date information about current economic conditions and tendencies here and abroad, continuous discussion and interchange of ideas among industrial executives regarding new developments in the business picture and fundamental data upon which can be built a better understanding of the basic factors in national prosperity.

"Knowledge alone may no longer be enough; united action may also be needed; but knowledge will certainly always be indispensable to wise and effective action."

Decline in Gas Revenues Small in 1932

REVENUES from manufactured gas in the United States in 1932 aggregated about $413,250,000, representing a decrease of 5.1 per cent from the 1931 figure, according to Alexander Forward, managing director of the American Gas Association.

Alexander Forward

While total sales of manufactured gas to consumers registered a decline of 4.8 per cent, according to preliminary estimates of the Association's Statistical Department, an outstanding exception to the general trend was the increase shown in the use of gas for house heating purposes. In 1931 sales of manufactured gas for house heating purposes were 19,908,100,000 cubic feet but during 1932 this figure rose to 20,445,600,000 cubic feet, an increase of 2.7 per cent in this class of business.

The decline in natural gas sales for domestic and commercial purposes was relatively small, amounting to less than 5.4 per cent. In keeping with general economic conditions, however, natural gas sales for industrial purposes registered a decline of about 15 per cent. In addition to this decline in ordinary industrial sales, the amount of natural gas used for non-utility purposes including manufacture of carbon black and consumed in oil and gas field operations apparently declined some 22 per cent, with the result that the entire consumption of natural gas for all purposes during 1932 is expected to run about 16 per cent under the corresponding figure for 1931.

Natural gas customers in 1932 were only 1.1 per cent fewer than in 1931.

"The economic situation offers an easy mark for agitations for reductions in rates," said Mr. Forward, "although further reductions in revenues will, in most instances, imperil the public service."

"The American Gas Association, however, is fully alive to the situation," he continued. "We have set up a committee composed of foremost executives of the industry for a comprehensive national program, which is expected to prove of immense value in keeping our business stabilized and in extending an essential public service. Manufacturers of gas ranges and other appliances are active and alert. We are continuing our research program. The continued improvement and consequent insurance of safe and efficient appliances in the home and automatically controlled appliances in industry are some of the most apparent proofs. I think that the gas industry is alive to its future and to the needs of reviving industry."

Canadians to Have Free Gas Supply

An arrangement has been concluded whereby the municipal distribution system of the town of Bow Island, Canada, will receive from the Canadian Western Natural Gas, Light, Heat & Power Co., a gas supply, free of charge, for five years. In return the company will take over and plug the Bow Island community well.

National Hotel Exposition Shows Greater Economy of Gas

THE theme of "Greater Economy with Modern Gas Engineering" was a main feature of the 1932 National Hotel Exposition, held at Grand Central Palace, New York, November 14 to 18. Such varied operations as volume cooking, water heating, broiling, and refrigeration were demonstrated in the combined exhibit of the Consolidated Gas Company of New York, American Gas Association, Standard Gas Equipment Corporation, Detroit-Michigan Stove Company, and G. S. Blodgett Company, Inc.

Considerable interest was aroused by a large chart showing a steady decrease in the average cost of operating a heavy duty gas range during the period from 1912 to 1932. The figures indicated that modern equipment had made possible a saving of 20 per cent in gas consumption.

The equipment on display included: Ranges, broilers, bake ovens, automatic toasters, water heaters, boilers, and automatic gas refrigerators.

The heavy duty ranges with oven heat control and oven insulation attracted a great deal of attention.

George Rector, proprietor of the Broadway restaurant of pre-War fame, was among the visitors at the Hotel Show. Here he is shown inspecting the 1932 gas appliances at the Exposition in the Grand Central Palace.

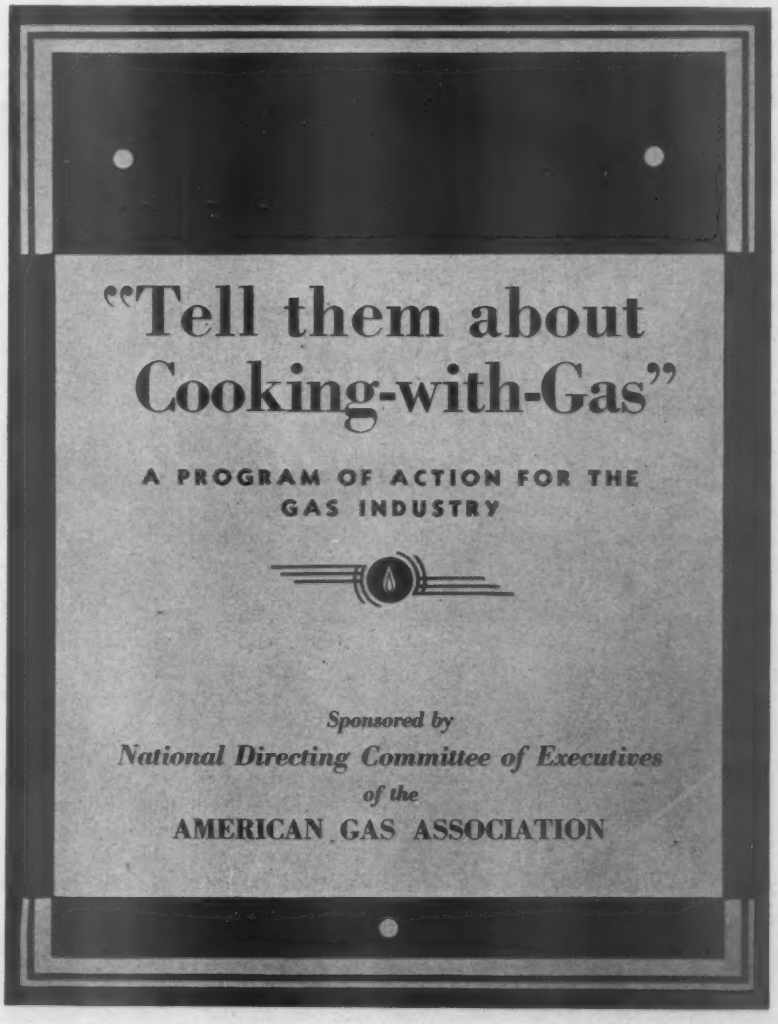
A glimpse of the display of gas appliances at the National Hotel Exposition which was held in New York

A. G. A. Develops Program of Action To Promote Gas Cookery

IN an attractive announcement—cover of which is reproduced here—a new A. G. A. program of action—"Tell Them About Cooking-With-Gas"—has been announced to the industry by the National Directing Committee of Executives.

This program is intended for employees of gas companies and has been developed under the supervision of the Commercial Section Committee on Domestic Ranges.

The objective of the committee is to inform housewives in the United States and Canada about the distinctive merits of the modern gas range and the decided advantages of gas cookery. It purposes to "*Tell* Them About Cooking-With-Gas"—literally that—by direct word-of-mouth. It contemplates that every one of them shall hear, listen to, and be converted to the gospel of modern, up-to-date gas cooking. The modern gas range and its benefits is a story that is not yet half-told. It is news that needs to be told to everyone and told well.


"Tell them about Cooking-with-Gas"
A PROGRAM OF ACTION FOR THE GAS INDUSTRY
Sponsored by
National Directing Committee of Executives
of the
AMERICAN GAS ASSOCIATION

How the News Will Be Spread

The Committee feels that the best, the surest, the quickest, and the cheapest way to get our story broadcast is through the industry's own employees. Every man and woman in our industry is meeting people daily. The program shows how to capitalize on this enormous potential asset—how to organize and mobilize it for direct, definite and effective mass action.

The task of informing the public completely and quickly is too enormous for sales and home service departments alone. What is needed is the organized, well-directed teamwork of the personnel of each company.

Many employees have numerous outside contacts with the public on company business; for example, salesmen, service men, meter readers, and collectors. All of them should understand well the big advantages of gas as a cooking fuel, the main features of modern gas ranges, and the reasons why gas is especially suitable for various important cooking operations. Not only should they know the facts, but also how to take the initiative in explaining the facts to customers.

Other employees, such as cashiers, floor salesmen, and some of the executive or semi-executive personnel, meet many customers in the company's office. It is particularly desirable that they should be prepared to answer questions interestingly, to bring up suggestions about gas-cooking and to direct attention to modern gas ranges.

The potential value of the personal contacts of all employees, not only business contacts but friendly and neighborly contacts as well, have been too long neglected. Substantially all their friends and acquaintances belong to customer-households. Each employee in his or her own circle is regarded as a representative of the gas company. Their collective influence, if developed and guided, can play a big part in combatting false ideas and in strengthening the company's hold on the market for cooking fuel.

The A.G.A. Program of Action enables any member company to train and mobilize its entire personnel or any part of the personnel. It can be put into operation at once. It is one practical solution to the problem of reaching the public quickly and telling them the facts about cooking fuels, ranges, and cooking operations.

The Time for Action is Here and Now

The Program as presented aims not only to hold, but to increase the send-out for domestic cooking, and the following factors make an aggressive campaign particularly timely:

Of prime importance is the current back-to-the-home trend which carries with it a growing interest in home cooking and home equipment. Closely associated with this trend is the universal necessity and desire for economy under present conditions. Economy in food purchases as well as in fuel is best attained by modern cooking-with-gas.

The promotional campaign for electric ranges creates also a great number of better prospects for modern gas cooking. Insofar as the campaign is constructive, it creates a desire for modern ranges with improved design, control and insulation features. The best way to reap benefit from the situation is to tell every customer about the modern gas range before someone sells her an electric range.

Striking improvements in gas ranges have made them far more appealing to customers; but these improvements are so recent that most housewives have only hazy notions of what they mean. Such customers, accustomed to gas cooking, can be sold modern gas ranges more easily than other ranges; and every customer in whose home a modern gas range is installed is definitely removed as a prospect for other fuels.

The above conditions present an opportunity to install modern gas ranges more rapidly than ever before. Apart from checking competitive inroads, their installation will stimulate home-cooking and will thus build up the cooking load. An actual survey last year by one leading gas company of the effects of 540 typical installations of new ranges revealed a net increase of gas sales amounting to 6.3%.

A Completely Organized Program of Action

While the program is carefully planned to give all employees clear, accurate and specific knowledge about gas as a cooking fuel, modern gas ranges, and gas cookery, the emphasis is laid again-and-again on getting action.

The whole program is built around a combination of—

1. *Individual Activities* to show every individual how to develop and capitalize on his personal contacts, and

2. *Group Activities* to develop a co-operative movement to popularize correct ideas about gas and gas cooking.

It may be summarized as a continuous business-building campaign in which the entire company personnel may participate under carefully planned direction.

Because company-wide participation is highly desirable, the Committee has set the cost of the program at an extremely low figure.

The Need for Mass Action is Urgent

Many other progressive industries have done much to organize employees into a powerful business-building force.

The American Telephone and Telegraph Company has organized its entire personnel throughout the country in a united effort which has brought in millions of dollars of new business, thus offsetting a good part of the inevitable loss in telephone installations during the depression.

A well-known distributor of coal and building materials ascribes a good share of its relative prosperity during the last three years to the effective co-operation of its employees in finding and in holding trade.

Many of the leading banks of the country have discovered that the best way to develop new business—and particularly to obtain large numbers of new savings accounts—is to call upon their employees for a concerted effort.

Electrical appliance manufacturers, to take one conspicuous example, have carried on extensive and successful campaigns through the employees of their own and associated companies.

A great automobile manufacturing company, several insurance companies, the Pullman Company, a vacuum cleaner company—all offer outstanding instances of sales-and-goodwill campaigns carried on through employees, which have produced extra earnings for employees, have directly increased the profits of the employing companies, and have enormously strengthened their competitive positions.

Scores of instances of this nature have been examined in order to glean from them ideas and methods of particular value for the A.G.A. Program of Action. Incidentally, that is one reason for believing that the A.G.A. Program should prove even more effective than the preceding plans for developing business through employees.

Probably the chief teaching of all successful experience in this field is that every important move must be foreseen and planned. In this respect, at least, a successful sales-building campaign resembles a successful political campaign. Much of it which appears to a casual observer to be a product of self-generated enthusiasm has, in fact, been intelligently prepared and accurately timed. Otherwise, worthwhile results are highly improbable. As one gas executive has neatly phrased it, "Combustion is seldom spontaneous."

The Committee has kept this thought in mind when planning the A.G.A. Program "Tell Them About Cooking-with-Gas." The time is ripe for this activity. It is hoped that every company will participate fully and immediately.

Inquiries should be addressed to the Secretary, Commercial Section, American Gas Association, 420 Lexington Avenue, New York, N. Y.

The Beal Medal —1897-1932

By H. W. Hartman,

Secretary, Technical Section,
American Gas Association

THIRTY-FIVE years ago the late W. R. Beal offered to present a medal annually for the best paper read at the meetings of the American Gas Light Association.

Chas. H. Nettleton was president of the Association and Alfred E. Forstall was its secretary. The secretary's report set forth a total of 373 active members, fifty-seven associate members and seven honorary members.

The late W. R. Beal

The Report of the Council gravely recorded the birth of the Beal Medal in the following terms:

> Mr. W. R. Beal having offered to present annually a gold medal to the writer of the most valuable paper presented at each meeting, the Council accept the same with thanks, and recommend that it be known as the "Beal Medal," and be awarded by a committee of three appointed by the president from among the past presidents.
>
> Respectfully submitted,
>
> Alfred E. Forstall, Secretary — Charles H. Nettleton, President
>
> Old Point Comfort, Va., October 20, 1897

It is doubtful whether the "Council" had any conception that the medal thus offered and so gravely and cryptically "acknowledged" was to outlive not only the association that received it, but several succeeding associations.

It is doubtful whether any one of the 151 delegates registered at this 1897 Convention could have had any conception of the tremendous technical progress and development that the next thirty-five years was to bring forth.

The industry in those days had no research or testing laboratory. The report of the secretary-treasurer at this meeting showed no appropriations of thousands of dollars earmarked for research. In fact the total receipts were recorded in the treasurer's report as some $3,000 and the statement of expenditures included such items as:

Expense of 25th Annual Meeting	$21.85	
Office Expenses	28.65	
New Typewriter	55.00	
Net Bank Balance from Checkbook		$286.72
Cash in hands of Treasurer		1.00

The Beal Medal

Our present-day industry, however, with its organization, its very proper preoccupation with the task of barely keeping abreast of the technical progress today—may well pause in admiration of the vision of this pioneer whose appreciation of the need for encouraging technology was so far in advance of its accomplishments.

While the gas men of 1897 can be excused for not realizing the future of the Beal Medal, the gas men of today have no excuse for not realizing its glorious past and the splendid traditions that surround it. No greater tribute could be paid to its donor than the letter of his son—the late T. R. Beal—in continuing the award December 19, 1927:

"During his lifetime, from the age of fifteen to the end, he made the gas in-

The late T. R. Beal

dustry his 'profession.' He gave to it the best he had to give. Always a student, he found that technical knowledge was scarce in his day, and much had to be acquired in the school of experience. He was, nevertheless, an engineer in the best sense of the term, and contributed to the early development of the business, by many inventions and improvements of a technical nature, so that it was perhaps natural that he should appreciate the continuing need of technical research and development.

"The distinguished men who have been awarded the medal in the past have given it a distinction apart, and my brothers and sisters in continuing the medal had this in mind, as well as the memory of a father who bore an honored name in his profession. . . ."

A brief historical review of the medals and awards established for the encouragement of technical development and research indicates that the Beal Medal—

Was the first medal awarded in the gas industry.

That it antedates such outstanding technical recognition as:

The Walton Clark Medal	1927
The A. S. M. E. Medal	1920
The Holley Medal	1924
The Melville Medal	1914
The Franklin Medal (Gold)	1914
The Doherty Award (N. E. L. A.)	1904
The Coffin Award (N. E. L. A.)	1921
The McGraw Medal (N. E. L. A.)	1924

The American Gas Light Association lived for eight years after the Beal Medal was born, and under the jurisdiction of that Association it was awarded to the following men:

1898—H. L. Doherty, "How Can We Make the Use of Gas for Cooking More Universal?"

1899—A. G. Glasgow, "Carburetted Water Gas as a Coal Gas Auxiliary." C. H. Nettleton, Chairman.

Henry L. Doherty

The first winner of the Beal Medal was Henry L. Doherty. When awarded in 1898 Mr. Doherty was purchasing agent of the Madison Gas & Electric Company, Madison, Wisconsin. This was the first recognition of the man who became head of the largest utility organization today.

1900—("Subjects precluded presentation of original matter.") A. C. Humphreys, Chairman.

1901—("No paper showing marked originality or exceptional merit.") C. J. R. Humphreys, Chairman.

1902—I. N. Knapp, "Notes on Cement Masonry." Walton Clark, Chairman.

1903—(No award, no reason given.) E. G. Pratt, Chairman.

1904—B. H. Spangenberg, "Consumers Meters." A. C. Humphreys, Chairman.

1905—H. L. Rice, "High Pressure Distribution." Rollin Norris, Chairman.

The American Gas Institute was organized in 1906 and during its existence the medal was awarded to:

1906—W. H. Gartley, "The Delivery of Uniform Candle Power." G. G. Ramsdell, Chairman.

1907—("Cannot make award to Committee.") C. F. Prichard, Chairman.

1908—W. H. Fulweiler, "Physical Theory of Coal Carbonization." A. C. Humphreys, Chairman.

1909—C. J. Ramsburg, "Sulphur Compounds in Illuminating Gas." C. F. Prichard, Chairman.

1910—H. W. Alrich, "Brick, Concrete and Steel Holder Tanks." W. H. Bradley, Chairman.

1911—L. E. Worthing, "Some Principles of Condensation." D. McDonald, Chairman.

1912—C. O. Bond, "Photometry of Incandescent Gas Lamps." I. C. Copley, Chairman.

1913—O. B. Evans, "Notes on Carbonization in Vertical Retorts." W. R. Addicks, Chairman.

1914—F. W. Steere, "Electrical Process for Detarring Gas." W. H. Gartley, Chairman.

1915—All Committees. No award.

1916—No award made.

1917—No meeting.

1918—No meeting.

In 1918 our own American Gas Association was organized and again the Beal family continued the award. Under the jurisdiction of the Technical Section of the A. G. A. the Medal has been awarded as follows:

1919—E. J. Brady, "A New Heating Value Indicator." Geo. B. Cortelyou, Chairman.

1920—No award.

1921—F. W. Sperr, Jr., "Seaboard Liquid Process of Gas Purification." Dana D. Barnum, Chairman.

1922—No award.

1923—No award.

1924—Arthur Woodward Warner, "The Study of Some Physical Laws Governing the Carbonization of Coal." J. B. Klumpp, Chairman.

1925—Dr. Ralph L. Brown, "Gummy Deposits in Gas Meters—Causes and Prevention." H. C. Abell, Chairman.

1926—No award.

1927—F. W. Sperr, Jr., "Dehydration of Gases." A. B. Macbeth, Chairman.

1928—L. J. Willien and Louis Stein, "Developments in Water Gas Operation." O. H. Fogg, Chairman.

1929—No award.

1930—No award.

1931—Philip Thornton Dashiell, "Use of Heavy Fuel Oil in the Manufacture of Carburetted Water Gas." B. V. Pfeiffer, Chairman.

1932—Robert Brinton Harper, "Gas Flames in Conversions to New Gases." R. G. Griswold, Chairman.

In 1930 the representatives of the Beal family very generously extended the scope of the award to include technical papers presented before the Conventions of the Natural Gas Department and before the Technical Section Conferences.

On December 10, 1932, J. A. Perry announced at the meeting of the Managing Committee of the Technical Section:

"The Executive Board of the American Gas Association, on November 30, received the very generous offer of the

(Continued on page 31)

R. B. Harper

The latest winner of the Beal Medal is Robert B. Harper, vice-president of The Peoples Gas Light & Coke Co., Chicago, Ill. The presentation was made to him at the Fourteenth Annual Convention of the Association, in Atlantic City, N. J., last October.

The American Gas Industry Through Polish Eyes

By George Malecki

Chemical Engineer,
Warsaw, Poland

POLAND, proud of her recovered independence, is trying by persistent hard work to attain the high standard of living in which America leads the World. The economic life of our State, at a standstill under the oppression of invaders, is now quickly recovering and those who have seen Poland in the early days and now after almost fourteen years of independence have noted with astonishment and admiration what an energetic and work-loving nation, when left free to develop, can do.

The growth of the nation is paralleled by that of the country's gas industry and during the past fourteen years several gasworks have been constructed and during the present depression plans are being made for many others. The possibilities are very great as, with a population of thirty-two million, Poland has only about 110 gasworks. Several quite large towns have no gasworks and all existing gasworks are too small when compared with the population supplied.

The best example of this is in Warsaw with a population of 1,200,000 and a daily sendout of only six to seven million cu.ft. The steady improvement in the national welfare and rapidly growing population will surely result in greater use of gas in Poland similar to that now obtained in the United States.

Plans Six Months' Visit

Poland has great need of experienced engineers and as a result I was seriously advised to make a wide study of the gas industry in Europe and later in America in order to have intimate knowledge of the latest developments in the gas industry. In anticipation of my visit to this country I joined Professor J. J. Morgan's Manufactured Gas Correspondence Course, Columbia University, in order to obtain a general idea of the American gas industry. In this connection Professor Morgan was most kind and helpful to me.

After careful study and upon the advice of Professor Morgan and the American Gas Association headquarters' staff I worked out a detailed and extensive program for the six months of my visit. This includes visits to many gas companies throughout the country to study the activities of all of their various departments, also many research organizations and universities giving gas courses, and the American Gas Association headquarters to study the structure of the American Gas Association, and a visit to the A.G.A. Testing Laboratory, in Cleveland.

As a Polish gas engineer visiting the United States I naturally compared the industries of the two countries. Even though the Polish gasworks are small in comparison, we Poles are very proud of them. Despite difficult economic conditions we feel that our small gasworks as to technical standing are on an international level. This is indicated by the efficiency tests of the retorts recently obtained at Warsaw and Poznan which we feel we can challenge the world to equal.

Studying Commercial Activities

These two gasworks have continuous vertical "steaming" retorts which are considered by a great many engineers as the best suited for small and medium sized gasworks of five to seven million cu.ft. of gas per day. The high yields obtained on these plants are 23,800 cu.ft. per long ton (above 70 kilograms per 100 kilograms of coal) of 449 B.t.u. gas (4,000 Cal. per cubic meter). Average yield obtained in daily routine at these works is approximately 22,400 cu.ft. per long ton. A year ago these were the largest yields ever obtained in high temperature carbonization.

George Malecki

Mr. Malecki, who is a member of the Polish Gas Engineering Association, has been identified with the gas industry since 1928, when he joined the Cracow Gas Works. At the request of the Warsaw Gas Works, he visited England and at that time translated into Polish the book, NOTES ON THE OPERATION OF GLOVER-WEST VERTICAL RETORTS. *He has spent much time in studying methods used in France, Austria and Germany, and wrote an article, "Gas Distribution in Paris," which appeared in the Polish gas engineering paper,* GAZ I WODA.

In Poland the gas is chiefly made in ovens, retorts, or chambers of small or medium size. Some are arranged for steaming to manufacture water gas and cool the coke. In America most carbonizing is done in large chambers or ovens without steaming differing from Polish practice due to economic conditions of coke marketing. In Poland coke is mostly sold for domestic use and to small industries. Our more highly reactive coke is more suitable for easy burning domestic use. However, in the highly competitive coke market

gasworks coke frequently meets the very high standard required of high quality metallurgical coke.

Although gas production in Poland is very efficient, the commercial side of the industry leaves much to be desired. Many of the commercial activities of the American industry, especially the new business department, are lacking not only in Poland but in Europe generally. During my visits to The Brooklyn Union Gas Company, Brooklyn, N. Y., the Consolidated Gas Company of New York, and the Peoples Gas Light & Coke Company, Chicago, I noticed an activity which a few years ago was considered as pioneer work and even then in only a few gasworks. Today this activity is of the greatest importance in the United States although still almost unknown in Europe. I refer to the customer relationship in which you obtain the good will and friendship of your customers. I recognize this to be an activity of the greatest importance and am giving it deep study so that I may introduce it to Poland.

Attracted by Advertising

Another activity entirely strange to Poland is the means of reaching churches, clubs, etc., by talks from department heads. This direct contact is of the greatest importance. Your advertising and publicity departments are generally recognized as the best in the world and form an activity which hardly exists in the Polish industry. This has a prominent place in my program and I am studying very eagerly the numerous advertising mediums of each gas company with the view to improving the present Polish methods.

A further activity of the American industry much admired by Europeans is your safety departments by means of which each company takes care of its employees and customers. This is of the greatest interest to me.

My most active interest, however, is that of American laboratory and research departments. What I have seen up to the present time in America confirms the world's opinion of the high standing of research obtained by the industry in the United States. I believe that industrial research is mostly responsible for the high standards of living obtained by the average American and, for this reason, I am very interested in the research departments of the American gas industry.

Visits A.G.A. Headquarters

European engineers greatly admire the educational facilities of the American gas industry and I am particularly interested in its numerous correspondence courses, especially those for the gasworks' employees. I am also greatly interested in the most valuable educational films which you use as an excellent medium of advertising. In this connection the well-known German paper, *Gas und Wasserfach*, has asked me to write an article on education in the American gas industry.

As a great admirer of the wide activities of the American Gas Association, which gives real and valuable help to every gasworks in the country, my first visit was to its New York headquarters.

Before leaving Europe, I heard a great deal of praise of the American business man and his extreme kindness to foreign visitors, but I was unprepared for the remarkable reception given to me from the lowest to the highest member of every organization I have visited. Thanks to this reception my first impressions of the United States lacked that strange feeling which always accompanies a newcomer. The way in which each individual carefully explains the detail of his activities clearly shows how much he likes his work.

I wish to express my deepest appreciation for the many courtesies and great kindness shown me by the American gas men and my real admiration for the excellent development of their industry. I only hope that some day I may reciprocate these kindnesses to those of you who will visit our small but interesting Polish gasworks to which I heartily invite you in the name of the Polish Gas Engineering Association, which Association sends to you its heartiest wishes for the New Year that the American gas business shall continue its most striking and admirable development ever seen in the gas industry.

Polish Association Seeks Members Here

The Polish Gas and Water Engineering Association is anxious to get in touch with engineers and experienced employees in the American gas industry of Polish origin who are interested in the Polish gas industry. In order to establish permanent relations between Polish gas men in both countries, American correspondents should write to George Malecki, Care West Gas Improvement Co. of America, 441 Lexington Avenue, New York City, who will give information concerning applications for membership in the Polish Association.

In addition to general and special information of the latest developments in the water and gas industry in Poland and Europe, members receive monthly "Gaz i Woda."

New York Student Receives Honor at Hopkins

OF the entire junior class in the School of Engineering at Johns Hopkins University, Baltimore, Md., only two were elected to *Tau Beta Pi*, the honorary engineering fraternity. One of these is John N. Terry, of Ossining, New York. Last year he was awarded the slide rule given to the outstanding member of his class by this fraternity.

Mr. Terry is enrolled in the Gas Engineering Course at the University, and is holding one of the scholarships granted by the Consolidated Gas Company of New York.

He is the son of H. W. Terry, Jr., secretary of the Employees' Mutual Aid Society of the Consolidated Gas Company.

Tampa Consumers Paying Lower Gas Rate

THE lowest gas rates in the history of the Tampa Gas Company, Tampa, Fla., will become effective January 1, under a reduced rate schedule announced by Rosco Nettles, general manager of the company. To about 14,500 of the company's 16,000 customers the reduced rates will mean an aggregate annual saving of between $60,000 and $75,000. Beginning with consumers using more than 1000 cu.ft. per month—in which bracket are included all but a small percentage of the company's customers—the rates have been revised downward for every class of consumer.

Among the first customers to reap the benefits of the revised rate schedule will be the Tampa public schools and the school cafeterias.

New Method of Polishing Gray and Malleable Irons for Metallographic Examinations

By Richard Schneidewind

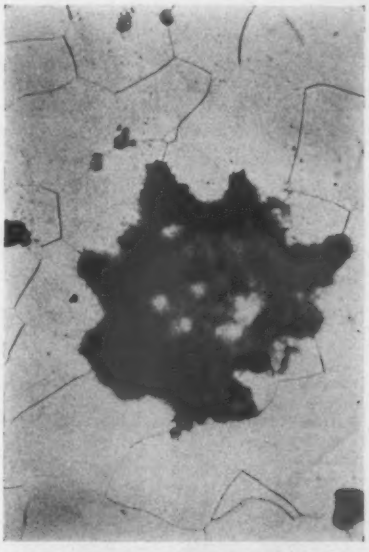
Department of Engineering Research, University of Michigan

IT is universally recognized that close control of a process is essential in producing a uniform product of good quality. Industrial gas engineers have worked a long time in perfecting furnaces and burners and automatic equipment capable of maintaining the temperature within quite narrow limits. Temperature control is especially important in the metallurgical field in heat treating, annealing, normalizing, and, as has come to light recently, in forging operations.

Control of atmosphere within the furnace is necessary to prevent scaling and decarburization of irons and steels. Since this is more readily accomplished with gas fuel than with other methods of heating, gas engineers are engaged in determining the conditions of combustion which will form carbon monoxide, carbon dioxide, sulphur gases, and oxygen in relative quantities which are permissible to avoid unfavorable results.

Metallurgical products are also controlled metallographically under the microscope. Specimens of the material to be investigated are ground, polished, and etched in a suitable medium and then are examined at from 50 to 1000 diameters depending upon the constituent sought. The success of microscopic examinations is largely dependent upon the quality of polish on the specimen. The polishing of gray and malleable cast irons for study at high magnifications presents considerable difficulty. Particles of graphite, being quite friable and comparatively soft, may be pulled out of the metal. Metal at the edge of the cavities is then rounded down.

For example, the graphite in malleable iron frequently assumes a crablike shape but, after polishing the specimen by the usual powder-and-water methods, this constituent appears roughly circular under the microscope. At high magnification it will be found that the area in immediate contact with the graphite has been worn away to such an extent that the edges are entirely out of focus.



Malleable iron × 1000 etched—old method. Note graphite torn out and hence the spot is out of focus

Furthermore, the color of the graphite will appear to be black, whereas its color is actually gray.

In the course of research on quick-annealing of malleable irons at the University of Michigan, sponsored by the Committee on Industrial Gas Research of the American Gas Association, a rapid and satisfactory method of polishing has been developed. This method does not tear out the graphite, reveals the true microstructure, and permits the taking of photomicrographs at 1000 diameters and higher. Hence, it offers an improved means of accomplishing metallographic control for the gray and malleable cast-iron industries.

The usual powder-and-water method of polishing consists of the following steps:

1. Very light grinding on a fine emery wheel, or similar abrasive.

2. Grinding on a canvas covered disc with 3-F alundum powder wetted with water.

3. Polishing on a broadcloth covered disc with 10-F alundum powder wetted with water.

4. Polishing on a broadcloth covered disc with 65-F alundum powder wetted with water.

5. It is then finished by polishing with water alone. If desired, another wheel with levigated alumina may be used.

This method gives the unsatisfactory results mentioned above and shown in the upper view on the next page.

The methods which proved successful contain significant features of those described by Herty, by Burgess and Vilella in Transactions, A. S. S. T., 1925, and by Wohrman in Transactions, 1928, for polishing steel prior to examination for non-metallic inclusions. The principle is to avoid loose powder abrasives and water. Jewelers' rouge (which consists of rouge cast in a stearic acid base) is used instead, and only enough water is put on the disc to act as a lubricant.

The method worked out under the sponsorship of the A. G. A. Committee on Industrial Gas Research is as follows:

1. Very light grinding on a fine emery wheel.

2. Polishing on the face, the periphery, of a leather wheel charged with "stainless steel buffing com-

Gray cast iron × 1000 etched—new method of polishing

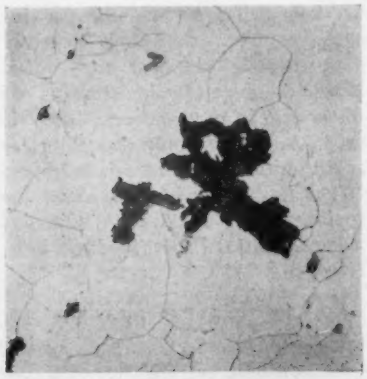
pound" which is a mixture of pumice and alumina cast in a stearic acid base.

3. Polishing on a leather wheel or on a disc covered with billiard cloth, either one charged with "chromium plate buffing compound" which is alumina cast in a stearic acid base. If the disc is used, water is dropped on sparingly.

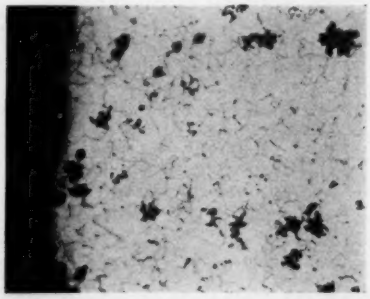
4. Finish polishing on a disc covered with billiard cloth and charged with Jewelers' rouge cast in stearic acid as above.

The leather wheel is a glued sheepskin wheel 8 inches in diameter with a 1-inch face running at 1750 r.p.m. Polishing is accomplished by moving the specimen across the face, the periphery, of the wheel. This method has proved quite rapid; with some practice the operator can produce specimens with edges less rounded than specimens polished with the usual powder and water method. In fact, we have made photomicrographs out to the very edge of a piece of malleable iron at 500 diameters without touching the fine focusing screw. This without mounting the specimen in fusible metal.

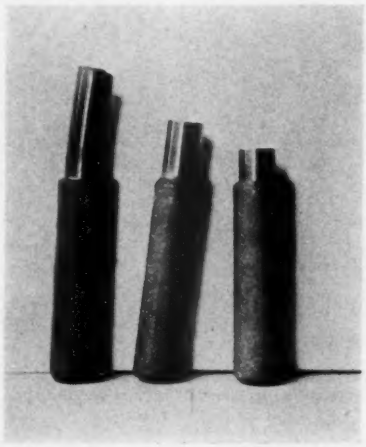
The leather wheels and the abrasives cast in stearic acid can be obtained from any supply house dealing in electroplaters' materials and are regular commercial products.



Malleable iron × 1000 etched—new method of polishing



Edge of malleable iron specimen annealed in gas atmosphere. New method of polish. Note absence of decarbonization or pearlite rim



Surface of bars annealed in gas atmosphere

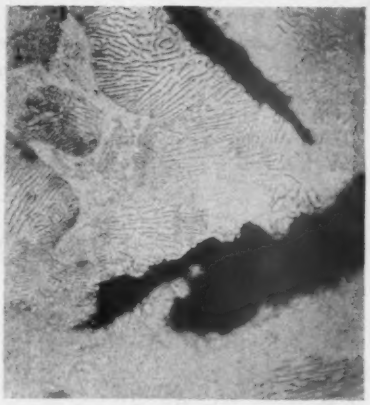
Industrial Gas Research Papers Stir Interest

AT the recent convention of the American Society for Steel Treating, in Buffalo, N. Y., two technical papers were presented on behalf of the A. G. A. Committee on Industrial Gas Research. The titles and authors of these papers were:

"The Behavior of Steel in Sulphur Containing Atmospheres at Forging Temperatures" by D. W. Murphy, research associate, University of Michigan, and "Scaling of Steel at Heat Treating Temperatures" by C. Upthegrove, professor of metallurgical engineering, and D. W. Murphy, research associate, University of Michigan.

The material for these papers, which created considerable discussion on the part of metallurgical experts and others at the convention, resulted from two research projects which the Research Committee has sponsored at the University of Michigan. These projects are:

Project No. 18—"Research in Factors Affecting Short Cycle Malleableizing," and Project No. 19—"Research in Scaling of Steel at Heat-Treating Temperatures."



Gray cast iron × 1000 etched—old method of polishing

Single Rate for Residential Consumers

A REVISION of gas rates of the Utica Gas & Electric Co., Utica, N. Y., which will combine the present general and space heating rates into a single rate applicable to all purposes for residential consumers, has been approved by the Public Service Commission.

The new rate involves a minimum charge of $1 per month for residential customers without space heating and a minimum charge of $80 per year for space heating customers. The rate is $1 for the first 500 cu.ft. or less per month; $1.15 per 1000 cu.ft. for the next 1500 cu.ft. per month; $1.00 per 1000 cu.ft. for the next 8000 cu.ft. and 75 cents per 1000 cu.ft. for all excess.

Henry D. Sharpe Heads New England Council

Henry D. Sharpe, president and treasurer of the Brown & Sharpe Manufacturing Company, Providence, R. I., has been made president of the New England Council for 1933. He is also vice-president of the Providence Gas Company, president of the Puritan Life Insurance Company and a director of the New England Telephone & Telegraph Company of Boston.

A. G. A. Affiliated Associations

How They Started and How They Have Grown

By Streuby L. Drumm
Secretary-Treasurer

SOUTHERN GAS ASSOCIATION

Herewith is the twelfth of a series of articles appearing in the "A. G. A. Monthly" giving an outline of the history and accomplishments of State and district utility associations which are affiliated with the American Gas Association. Work of these associations has proved of great value and a distinct contribution to the advancement of the gas industry. It is believed that this series will focus yet greater attention on the splendid records of these organizations.

THE Southern Gas Association year of 1932-33 marks the Twenty-fifth Anniversary of this Association in the promotion and development of knowledge, scientific and practical, in all matters relating to the gas industry in the South.

The incorporation of the Southern Gas Association dates back to September 17, 1908. It was on this date that, on application of T. D. Miller, R. C. Condon, and James Ferrier, a charter was granted and the Association duly incorporated under the laws of the State of Georgia. This original charter granted by the Superior Court of Fulton County, Georgia, expired after twenty years on March 5, 1928, and was renewed on application of the Board of Directors then holding office.

J. J. Brennan, of Memphis, Tenn., president of the Southern Gas Association

T. D. Miller, one of the original applicants who applied for the charter in the name of the Southern Gas Association, was its first president. Mr. Miller has continued his interest in the Southern Gas Association up until the present time, and is still one of its most active members.

The Southern Gas Association comprises twelve states—Alabama, Arkansas, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia, and the District of Columbia.

During 1924, the Association sponsored a chair in Gas Engineering in the School of Engineering of Johns Hopkins University, Baltimore, Maryland. This course has become a permanent one; and it is an activity of which the Southern Association feels proud.

The official record of the Association is published in the proceedings of its annual meeting, which is issued following each yearly convention.

Recently, there has been published a quarterly bulletin, which is distributed to the membership and which acts as a clearing house for all information and data concerning the activities of the gas industry in the South.

The Association's activities function principally through the three specialized committees as follows: Commercial, Industrial, and Technical. In addition to these committees, there are also committees which meet during the year and make annual reports as follows: Publicity and Advertising, Public Relations, Accounting, and Rate Research.

Combined and meeting jointly with the entire membership at the annual convention is the Southern Regional Sales Conference. This Sales Confer-

(Continued on page 34)

T. D. Miller, a charter member of the Southern Gas Association

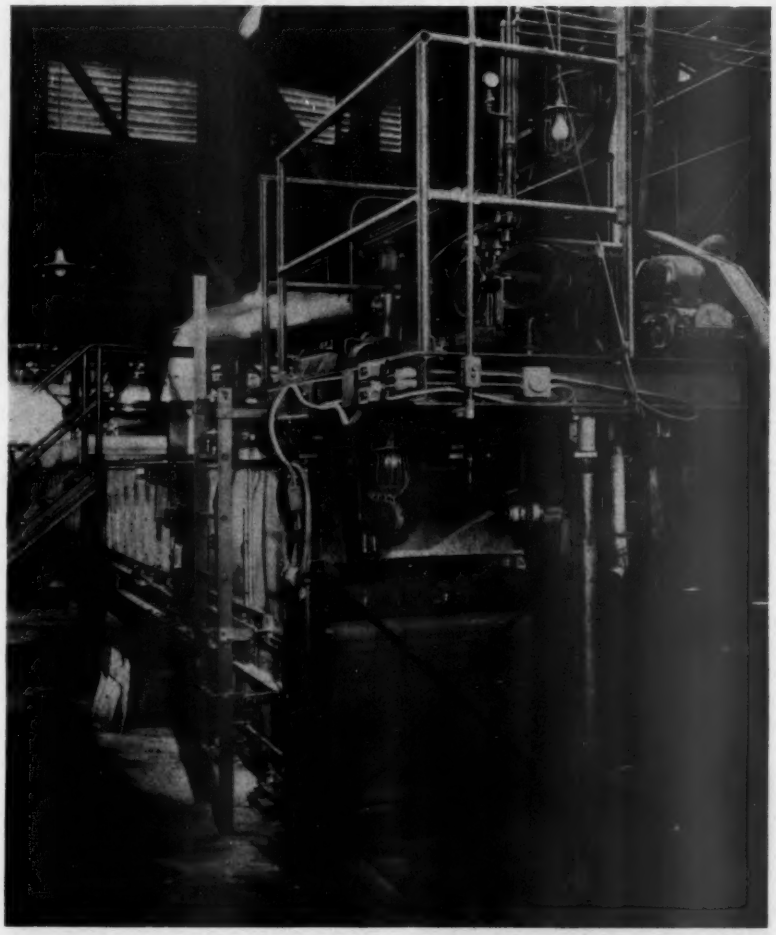
Continuous Glass Furnace and Automatic Bottle Forming Machines

By J. B. Nealey

AS in all other lines, manufacturers of glass containers, that is, the more progressive ones, have instituted laboratory control over their product and equipped their furnaces and lehrs with temperature controls that are automatic and continuous in operation. The machines are more or less standard equipment but the chemical analysis of the glass, its fluidity when melted and the physical qualities when made up into the finished product, vary greatly. One of the largest concerns in this line, which has adopted the closest production control and whose product is known throughout the trade for its exceptional qualities, is the Illinois Pacific Coast Co. with two plants in San Francisco, and two in Los Angeles, Calif.

In its production of glass containers of all descriptions, a close check by four chemists is maintained over the analyses of all raw materials, batches are made up with great care and more than ordinary discrimination is used in sorting and inspection while the finished bottles are given physical tests including pressure and thermal resistance. Every few minutes, sample containers are taken and thin sections are sawed from the centers. These are observed under a miscroscope with polarized light and any strains or variation in homogeneity show up as interference colors. When this condition is encountered the trouble is located and corrected immediately.

At the Folsom Street plan in San Francisco all of the raw materials are brought in in freight cars, on a spur track and all except the sand are transferred by screw conveyors, belt conveyors and bucket elevators to a distributing tower on the roof, and from here they are distributed, by shuttle conveyor and gravity chutes to 17 storage bins which set on the ground and rise up into the second story of the building. The sand must be dried and is transferred



Annealing furnace with continuously moving belt conveyor of wire mesh. Heat is supplied from a separate gas-fired air heater.

by screw conveyor and bucket elevator into a surge bin which discharges onto a traveling belt that feeds it into a dryer.

The sand dryer is a horizontal steel cylinder or kiln, 24 ft. long and 5 ft. in diameter, and is heated with four gas burners firing into a cylindrical Dutch oven enclosing the discharge end of the kiln. Of course the kiln sets at a slight angle and is rotated so as to cause the sand to progress through. It is discharged onto the same conveyor system already mentioned and is taken via the distributing tower, to the storage bins. This kiln has a capacity for 20 tons hourly and the correct temperature is maintained with an automatic control.

Batches are made up in buggies, which are wheeled from bin to bin where the portions are weighed out on scales, and then dumped into mechanical mixers. Bucket elevators take the mix to a batch tower on the fourth floor where it is distributed to four storage bins with hopper

bottoms, on the third floor. It is distributed from here by buggies to hoppers serving the furnace dog houses.

There are three glass furnaces, all in one line, the first being 22 x 45 ft. and 30 ft. high. It is built of 12-in. clay blocks below the glass bath line and of fire or silica brick above, while the roof is a self supporting silica block arch. This concern makes its own clay blocks and these are burned at 2,500° F. This furnace is heated with 10 gas burners, five on each side, and located just below the springline of the arch so that they fire down on the bath.

Of the regenerative type there is a chamber containing brick checkerwork on each side, with flues, butterfly valve and stack incident to this system of heating, which had its origin with the steel mills. The burners on one side of the furnace fire while the others are out, the hot products of combustion passing over the bath and out flues located close to the heads of the opposite burners, and down through one set of checkers, which absorbs much of the heat. At the same time hot air for combustion is drawn through similar ports, through the other set of checkers which have already been heated. This process is reversed every 30 minutes.

Each set of five burners is provided with a single gas manifold and this in turn is equipped with two solenoid valves by which the temperature of the furnace is automatically regulated. With these two valves, and when the temperature has risen above the point set on the index, the rate of gas flow, is progressively reduced from 1½ to 1 and then to ¾ lb. After the temperature has fallen below the point, the valves automatically open up again and increase the volume of gas fuel flow to the burners.

The glass is kept at 2,600° F., the air for combustion being brought in at 2,000° F. The bed of glass is 44 in. deep, the furnace will hold 325 tons and about 65 tons are used out of it daily. Batch material is fed in through the dog house every 30 minutes. A bridge wall, 13 ft. back of the front wall, divides the furnace hearth, the glass flowing from one to the other through a submerged opening, or throat, 10 in. in diameter. The glass is cooled to about 2,200° F. in the forward end of the furnace.

This furnace supplies molten glass to five mechanical and automatic forming machines, through submerged ports and feeders six or eight feet long which are kept hot with more gas burners. Three of these feeders are located in the front wall of the furnace, and one on each side, and the glass flows through by gravity. These feeders are so constructed that any predetermined weight of molten glass can be dropped from them intermittently. In the bottom of the feeder and close to the end is a hole or orifice through which the glass can flow. Above is a clay plug on the end of a walking beam and below a pair of shears, both mechanically operated. Now the operation of this plunger, shears and the forming machine below, is so nicely synchronized, through a mechanical timing device, that the amount or weight of glass dropped is always the same. The weight of glass also depends upon the size of the orifice, the time intervals and the temperature, all of which are readily susceptible to control.

The other two furnaces are like the one described except that instead of being 22 ft. wide they are only 18 ft.

A forming machine consists briefly of a series of progressive molds set on two circular steel plates, each four ft. in diameter, which are toothed and geared so that the rotation of one will cause the synchronous rotation of the other. The rotation is intermittent, coincides with the dropping of the molten glass and is caused by compressed air in a cylinder and piston, through a rack and pinion. The plates rotate through an arc of 60° at each impulse and there are six molds on each plate.

The different forming operations are as follows:

1. The glass drops into an inverted blank mold with an open neck and a small plunger rises, through a neck ring while air from above presses the glass against the ring to form the neck of a bottle. Mold turned over as it is rotated to the next station.

2. Baffle plate rises to close bottom of mold and blower head drops and forms inside of parison on glass blank and causes it to fill mold.

(Continued on page 33)

One of the glass furnaces which is of the regenerative type and fired with gas. Note the automatic temperature control apparatus at the left.

J. N. Shannahan Named Head of Midland United Co.

J. N. SHANNAHAN, of Omaha, Neb., has been selected president of the Midland United Company, and chief executive officer of its subsidiary companies, to succeed the late Robert M. Feustel, who died several months ago. Mr. Shannahan assumed his new duties on January 1.

J. N. Shannahan

Mr. Shannahan has had a wide experience in the management of electric, gas, and electric railway properties over a period of thirty-three years. At the time of his advancement to his present post he was president of the Omaha & Council Bluffs Street Railway Company. He has never had any connection with what was known as the Insull group of companies.

Mr. Shannahan will become the ranking officer of the Midland United Company. The vacancy caused by the resignation of Samuel Insull as chairman of the company several months ago will not be filled. Samuel Insull, Jr., is also expected to retire as vice-chairman of the company, according to the announcement, although he probably will remain a member of the board of directors. Mr. Shannahan announced that the offices of the Midland United Company will be moved from Chicago to Indianapolis.

The Midland United Company controls through common stock ownership a number of public utility companies operating chiefly in Indiana and western Ohio. Operating revenue of these companies last year was in excess of $44,000,000. The principal operating companies in the group are Northern Indiana Public Service Company, Public Service Company of Indiana, Indiana Service Corporation, Northern Indiana Power Company, Chicago South Shore and South Bend Railroad, Gary Heat, Light & Water Company, Indiana Railroad, and West Ohio Gas Company.

Mr. Shannahan was born in Troy, N. Y., on August 8, 1872. After his graduation as a civil engineer from Rensselaer Polytechnic Institute, in 1894, he went to work for the New York Central & Hudson River Railroad, remaining there until 1899 when he entered the public utility business.

He began his public utility career as chief engineer of the Edison Electric Light and Power Company and the Fonda, Johnstown and Gloversville Railroad in New York state, both controlled by the same interests. Later he became general superintendent and then general manager of these properties. In 1903 he was elected president of the Adirondack Lakes Traction Company. From 1907 to 1911 he was vice-president and general manager of the Washington, Baltimore and Annapolis Electric Railway. He became, in 1911, manager of railway operations for J. G. White & Company, owners of utility properties in various parts of the country. In 1912 he became vice-president and general manager of the Newport News & Hampton Railway Gas & Electric Company, Newport News, Va. He was elected president of that company in 1916 and remained there until he went to Omaha five years ago.

Mr. Shannahan served as president of the American Electric Railway Association in 1924-25. He has since served as chairman of the advisory council of that association.

During his five-year residence in Omaha, Mr. Shannahan was active in the civic affairs of the city and state. In 1931 he headed Omaha's Community Chest Financial Campaign which raised $611,000 when the quota was $534,000. In 1930 he was general chairman of the Nebraska 75th Anniversary celebration. In 1930 the Omaha Post of the American Legion, largest post in the world, selected him as Omaha's first citizen.

In Omaha Mr. Shannahan is a member of the Greater Omaha association, a group of fifty of the city's leading business men which considers all important civic or business enterprises.

He is a member of the board of directors of the Chamber of Commerce of the United States.

Home Study Course in Air Conditioning Announced by Rutgers University

A NEW "conquest of the air," coming speedily in the wake of the airplane and radio, is the promise of scientists engaged in the development of "made-to-order" air for the home, office, auditorium and factory. A recent development which points to the rapid growth of this industry is at Rutgers University—the State University of New Jersey—where the University Extension Division has made available a home study course in air conditioning.

This course is being offered to interested persons who are engaged in an advisory or practical capacity in public utilities directly concerned with power and fuel, in a similar capacity in the manufacture and distribution of equipment, or to that general group of scientifically minded persons who are eager to keep abreast of the times in related technical fields. The University was led to prepare and offer this correspondence course because of a nation-wide demand for scientific instruction in this field.

The control of weather, next to food supply, is man's oldest and fiercest battle. He has continuously sought improvements in clothing, shelter and heating, and in earlier times resorted to migration to improve climate, but has found it at best a fair weather friend. Winter and summer, even in the "civilized belt" of the earth, still bring with them inefficiency, discomfort, suffering and death.

The stage is set for a fresh attack on "old man weather." Already thousands of persons are engaged in designing, manufacturing and installing equipment which, for the family at home, the theatre and church goer, the office and factory worker, turns both winter and summer into mild and healthful weather.

The Rutgers course includes, in addition to a general discussion of the use of all types of fuels, an entire section on "Gas Consuming Air Conditioning Equipment." This section treats of heating by gas, cooling and dehumidifying by gas, the steam ejector cycle and the silica gel system.

The later sections of the course are of great interest to the established heating and ventilating engineer, as well as to all those engaged in the commercial side of the entire industry.

The method used is home-study. The instructors who direct individually each student in the Rutgers home-study course, are assisted by an advisory staff of highly trained authorities from the industry itself. Each lesson is given thorough reading, detailed correction and specific criticisms and suggestions.

It is especially important to the utility field that this course in Air Conditioning should be offered as a companion to two previous home study courses conducted by Rutgers—the Manufacture, Distribution and Utilization of Gas, already of demonstrated value to men in the utilities, and the course in Heating and Ventilating. Both of these earlier studies have been widely recommended both as prerequisites and valuable companion-courses to air conditioning.

The nominal fee for the course in air conditioning includes all text material, lesson assignments and correction service. Further information, including an announcement of the course, may be obtained by sending name and address to the University Extension Division, Rutgers University, New Brunswick, N. J.

The outline of the course, covered in twelve sections, includes Fundamentals and Definitions, Basic Computations, Estimating Heating and Cooling, and a description of such apparatus as Filters, Refrigeration Equipment, Gas Consuming Air Conditioning Equipment, Distribution Systems, and Controls.

Obituary

Edwin Ruud

EDWIN RUUD, pioneer in the automatic gas water heating field and founder of the Ruud Manufacturing Company, died December 10 at his home in Pittsburgh, Pennsylvania, after a long illness. He was seventy-eight years old.

Mr. Ruud was born in Norway, June 9, 1854, and arrived in America in 1880. He worked in shops at Philadelphia, Reading and Altoona, and in 1887 was offered a position with the Westinghouse interests.

He became associated with Westinghouse. They grew to be close companions, traveling in Europe in search for ideas while developing the gas engine. He met and worked with Rudolph Diesel, inventor of the Diesel engine; Dr. Walter Nernst, who developed the Nernst lamp; Lord Kelvin, famous English physicist, and became acquainted with Emil Rathenau, who developed large electrical interests in Germany, and later with Rathenau's son, Walter.

Eventually Ruud developed his water heater and went into business with others.

An honorary Doctor of Science degree was conferred on him by the University of Pittsburgh in 1927. The King of Norway's decoration, the Order of St. Olaf, which was bestowed upon him, is the highest honor that may be conferred on one not living in Norway. He also held the honor of Commander of Technical Institute, Hortens, Norway. It was at Hortens Technical College, a government institution, that he was graduated as a mechanical engineer at the age of 22.

Besides his wife, Mr. Ruud is survived by a stepson, John Henry Sorg, of Pittsburgh, and two sisters who live in Norway.

Honorary pallbearers at the funeral services included A. P. Brill, H. T. Peterson, H. R. Basford, C. E. Bartlett, A. H. Wardwell, G. H. Stengel, E. B. Scull, Max Cartall, E. C. A. Bliault, Henry Meyer, George Hobbs, J. C. Dyer, W. H. Kapus, H. S. Humphrey and F. A. Lemke.

Edwin Ruud

In his will, Mr. Ruud gave liberally to charity; also, to each ten-year employee, he gave $1,000, and to each twenty-year employee, $2,000, this provision being made for all employees in these classes all over the world.

Thomas H. Hintze

THOMAS H. HINTZE, an internationally known gas engineer, died December 6 at Gloucester, Mass. Mr. Hintze was born in Chelsea, in 1855. He received his early education in the schools of that city and of Malden. He entered the gas industry at the Chelsea gas plant in 1885, later serving as superintendent of that plant, of the Malden & Melrose Gas Company, the Lowell Gas Light Company, and as supervisor of gas operations for the Syracuse, N. Y., Lighting Company. Later he became chief engineer of the Providence, R. I., Gas Company. At that plant he introduced the vertical retort system of coal carbonization as a result of much study in Europe both of coal carbonization and by-product recovery, which studies were prosecuted particularly at the plant of the Stettiner-Chammothfabrick Company at Stettin, Germany.

He left Providence in 1918 and became associated with the Boston Consolidated Gas Company as superintendent of manufacture, remaining until 1928 when forced by ill health to retire.

Mr. Hintze was a member of Mt. Vernon lodge, A. F. & A. M. of Malden, past president of the New England Society of Gas Engineers, past president of the Guild of Gas Managers and a member of the American Gas Association. He lectured extensively at Syracuse University, Brown University, Lowell Technological School and the Massachusetts Institute of Technology, on modern methods of gas production, with particular reference to coal tar extraction and recovery.

He leaves a daughter, Mrs. R. P. Cunningham of Springfield; four sons, Harvey C. Hintze of Boston, Harold S. Hintze of Amherst, Thomas F. Hintze of Tulsa, Okla., and Carl Hintze of Providence, R. I.; and two sisters, Mrs. Frank Hamilton of Medford and Dr. Anne A. Hintze of Clifton Springs, N. Y.

R. A. Wallace

R. A. WALLACE, superintendent of the gas division, Quebec Power Company, and past president of the Canadian Gas Association, Quebec City, died November 15 following a long illness at the Jeffrey Hale Hospital, Quebec.

He was born in Ireland in 1868, but went to Canada at the age of 10, when his parents settled in Hamilton, Ontario. It was there that he received his education, and began his career. He worked for a number of years for the Hamilton Gas Company and became superintendent, which position he held at the time he transferred his operations to Quebec, in 1906, as superintendent of the old Quebec Gas Company. In later years, when that company was united with the Frontenac Gas Company, Mr. Wallace carried on as superintendent of the merged companies; which later became known as Quebec Power Company, of which he was gas superintendent.

Mr. Wallace was a Free Mason, and an honorary inspector-general, 33rd degree, of the Supreme Council of Scottish Rite for Canada. He is survived by his widow, Mrs. Grace Wallace; two sisters, Miss Frances Wallace and Mrs. G. Coddington, of Montreal; and two brothers, Hugh and Frank Wallace, also both of Montreal.

Fred W. Rogers

FRED W. ROGERS, president of the Malleable Iron Range Company, Beaver Dam, Wisconsin, died December 19, 1932.

William H. Barton

WILLIAM H. BARTON, forty-three years old, manager of the natural gas department of the Montana Power Company, died in Butte, December 26, of pneumonia. He was a native of Lincoln, Nebraka, and was for years with the Portland Gas & Coke Co., Portland, Oregon.

Heat High School and Library with Gas

THE Central States Electric Co., Cedar Rapids, Iowa, has closed contracts with the city of Belmond for furnishing natural gas to heat the high school and public library.

ACCOUNTING SECTION

J. M. ROBERTS, Chairman H. W. HARTMAN, Secretary E. B. NUTT, Vice-Chairman

Section Committees Coordinate Activities at Cleveland Meeting

PURSUANT to the policy of coordinating all committee activities, the Accounting Section Committees on Customer Accounting, Office Management, Customer Relations and Accounting Machines Committee, met at the Hollenden Hotel, Cleveland, Ohio, on December 19 and 20. Each committee organized its activities for the year at its individual meetings, following which there was a meeting of the four committee chairmen at which all activities were jointly discussed and any overlapping eliminated.

Customer Accounting Committee

This committee met on December 19 with the following members present:

H. B. Bearden, chairman, The Laclede Gas Light Company, St. Louis, Mo.; George I. Simpson, vice-chairman, The Peoples Gas Light & Coke Co., Chicago, Ill.; H. F. Hutcheson, Consumers Gas Co. of Toronto, Toronto, Ontario, Canada; Charles Scott, Consumers Gas Co. of Toronto, Toronto, Ont., Canada; John M. Rosa, Public Service Elec. & Gas Co., Newark, N. J.; J. J. Natale, Philadelphia Electric Co., Philadelphia, Pa.; S. H. Corson, Philadelphia Elec. Company, Jenkintown, Pa.; W. G. Murfit, Philadelphia Gas Works Co., Philadelphia, Pa.; J. H. Ahrens, Kings County Lighting Co., Brooklyn, N. Y.

The chairman presented an outline of the subjects for consideration, indicating that the suggested activities had been received from various sources including the Managing Committee and Advisory Committee of the Section. One of the principal activities decided upon was the gathering of statistics intended to establish a yardstick for determining the relative efficiency of customer accounting departments among gas companies operating under comparable conditions. Mr. Murfit and Mr. Simpson were assigned the task of selecting a group of companies and analyzing said group into logical divisions according to number of accounts, type of organization, etc. Following this a letter of inquiry will be prepared and submitted for approval to all members of the committee and the Section chairman, with a view to making comparisons on a man-hour basis. Several of the activities proposed for the committee's consideration will be handled through articles in the A. G. A. MONTHLY, as it was the feeling that they represented largely local problems.

The following subjects were also assigned at the meeting:

Accounting designations for customers' accounts, with particular emphasis on the possibility of the development of a fixed or permanent account number by locations—J. H. Ahrens.

Meter reading, with particular emphasis on the possibility of reading in even or odd hundreds of cubic feet, in order to reduce the size of billing charts and to facilitate proof of billing accuracy—J. J. Natale.

Study of the much discussed plan of estimating consumption on skipped or missed readings—J. M. Rosa.

Laclede plan versus billing customers moving at time of cut-off—H. F. Hutcheson.

Accounting Machines Committee

A meeting of this committee was held on December 19 with the following members present:

C. E. Eble, chairman, Consolidated Gas Co. of New York, New York, N. Y.; P. H. Brown, Brooklyn Union Gas Co., Brooklyn, N. Y.; H. E. Cliff, Public Service Electric & Gas Co., Newark, N. J.; H. A. Ehrmann, Midland United Co., Chicago, Ill.; E. F. Embree, New Haven Gas Light Co., New Haven, Conn.; G. L. Harrison, Astoria Light, Heat & Power Co., 4 Irving Place, New York, N. Y.; T. F. Herion, The Peoples Gas Light & Coke Co., Chicago, Ill.; J. E. Mickle, Philadelphia Electric Co., Philadelphia, Pa.; C. P. Read, Northern Gas & Pipe Line Co., Omaha, Neb.; E. N. Keller, Philadelphia Electric Co., Philadelphia, Pa.; J. W. Mackie, Delaware Power & Light Co., Wilmington, Del.

The chairman outlined the subjects presented at the last Convention to acquaint the new members of the committee with the various phases of these reports. The meeting finally adopted activities for the present year as follows:

1. The report of the main committee which will include:
   a. A summarization of the various reports.
   b. A statement to cover all current developments in accounting machines.
   c. A continuation and extension of the fundamental charts inaugurated in last year's report.
2. Continuation of the "Wrinkles" Report, which will include all unusual methods and procedures particularly designed to accomplish economies or increased efficiency in the Accounting and Commercial Office Departments.
3. Cost of printing and addressing bills.

P. H. Brown suggested that the committee give some consideration to the use of reproducing machines—a subject, it developed, which was also under consideration by Mr. Cliff's Committee on Office Management. It was finally decided that the respective chairmen of these two committees would agree as to the disposition of this item, either as a report of a joint committee, or as a joint article in the A. G. A. MONTHLY.

Arrangements were effected with the Cleveland Office of the Gardiner Co., Inc., to demonstrate their latest bookkeeping model following the meeting of this committee. The demonstration proved very interesting, and it was the consensus of the members present that features relating to this machine be embodied in the report of the Accounting Machines Committee under the heading of "Developments."

In accordance with plans previously entered into with the Addressograph-Multigraph Corporation, the entire personnel of the committee, together with the invited guests, visited their factory where the entire factory operations were explained in detail.

Customer Relations Committee

The Customer Relations Committee met on Tuesday, December 20, with the following in attendance:

H. A. Ehrmann, chairman, Midland United Company, Chicago, Ill.; Louis Stoecker, vice-chairman, Public Service Elec. & Gas Co., Newark, N. J.; Jay Barton, The Peoples Gas Light & Coke Co., Chicago, Ill.; S. H. Corson, Philadelphia Electric Company, Jenkintown, Pa.; Frank L. Hallock, Consolidated Gas Co. of New York, New York City; Samuel A. Hill, The Peoples Gas Light & Coke Co., Chicago, Ill.; Herman R. Jesper, The Brooklyn Union Gas Co., Brooklyn, N. Y.; Charles Scott, Consumers Gas Co. of Toronto, Toronto, Canada.

The chairman presented a complete review of the activities of the former Customer Relations Committees both of the A. G. A. and the N. E. L. A. It was decided

in general that the committee's report should be concerned with fundamentals rather than specific procedures in individual companies.

The following activities were approved:

1. To study the high bill complaint problem from the standpoint of breaking down the customer's resistance, through a complete analysis of the surrounding causes for high bills, including temperature changes, etc.

2. A study of the human element in contact employees. It is intended that this report shall deal with the inherent characteristics that are desirable in the contact employee, his attitude, etc.

3. A study to insure correct information on all orders. This report will deal with the means of correcting errors in the form of addresses, names, etc., on all orders, tickets, etc., so as to reduce to a minimum the return calls of service employees, etc.

The committee also arranged for articles dealing with customer relations to be printed in each of the issues of The A. G. A. MONTHLY until the fall convention beginning with the February number.

In its procedure this committee has provided for the organization of subcommittees on the Pacific Coast, Mid-west and Eastern portions of the country. One of the subjects enumerated above has been assigned to each of the subcommittees. Each will study and report on its assignment independently. The committees will meet within their own territory to study their assignments.

Office Management Committee

The Office Management Committee met on December 20 with the following present: H. E. Cliff, chairman, Public Service Electric & Gas Co., Newark, N. J.; Geo. B. Webber, Public Service Electric & Gas Co., Newark, N. J.; E. N. Keller, Philadelphia Electric Co., Philadelphia, Pa.; Pearl H. Brown, The Brooklyn Union Gas Co., Brooklyn, N. Y.; Charles E. Eble, Consolidated Gas Co. of New York, New York City; P. J. Sweenie, The Peoples Gas Light & Coke Co., Chicago, Ill.; John M. Rosa, Public Service Electric & Gas Company, Newark, N. J.; H. B. Bearden, The Laclede Gas Light Co., St. Louis, Mo.; James G. Waddick, The Peoples Gas Light & Coke Company, Chicago, Ill.; J. W. Mackie, Delaware Power & Light Co., Wilmington, Del.; J. E. Mickle, Philadelphia Electric Company, Philadelphia, Pa.

The chairman read the list of activities proposed for the committee's consideration, and the following action was taken:

1. Consideration of the application of the five-day week in so far as it affects departments within the jurisdiction of the Accounting Section will be taken care of largely through articles in the A. G. A. MONTHLY. The chairman indicated that he expected to have an article on the application of the five-day week from one of the companies with whom E. B. Nutt, vice-chairman of the Section is associated, and that probably an article could be obtained from the Detroit Edison Company. It was indicated that there were few instances of the five-day week as yet applied to office employees.

2. A very complete study will be made of form design and form standardization. This activity will be under the jurisdiction of a subcommittee with Mr. Sweenie, superintendent of Office Facilities of The Peoples Gas Light & Coke Company, acting as chairman. Mr. Sweenie described in detail the form standardization as accomplished in one of the larger companies indicating considerable savings in the cost and amount of stationery stock required. This had all been accomplished by the complete cooperation of the various department superintendents concerned.

3. The application of incentive wage plans to commercial office work.

   a. Specialization of commercial office functions.

   b. Application of wage incentives to groups.

H. B. Bearden described the functional organization of the commercial office of the Laclede Gas Light Company. Mr. Keller described the organization of the Philadelphia Electric Company, and the plans in view to date in regard to wage incentive. George I. Simpson fully described the organization of The Peoples Gas Light & Coke Company.

4. Study of reproduction equipment with particular reference to just where the various types of equipment can be used most economically. This is to include all types of reproduction equipment such as the Ditto machine, stencil stylographs, multigraphs, etc. Pearl Brown, The Brooklyn Union Gas Company, will present the subject in the form of an article for the A. G. A. MONTHLY, collaborating with the Accounting Machines Committee.

Joint Meeting of Committee Chairmen

A joint meeting of the committee chairmen was held on the afternoon of December 20, at which the activities decided upon in the individual committee meetings were thoroughly discussed and coordinated. It was decided, in line with the policy of keeping meetings to a minimum, that no further meetings of any of the committees would be required within the next four months with the possible exception of Mr. Bearden's Committee on Customers' Accounting.

Mr. Ehrmann referred to the desirability of interesting members in committee work who were situated in parts of the country that made it difficult or impracticable for them to attend meetings called either in the East or in the Middle West. With this in mind, he outlined for the benefit of the other committee chairmen, the organization plan adopted by the Customer Relations Committee of forming local committees in such territories as the Pacific Coast and Southwest, who would operate locally and keep in touch with the main committee by correspondence.

Traveling Laboratory Has Gas Refrigerator

The Commonwealth of Pennsylvania's new traveling laboratory, said to be the most completely equipped field laboratory ever constructed, and now in use by the Department of Health, Bureau of Laboratories, stopped recently at the Broad and Arch Street offices of the Philadelphia Gas Works Company long enough to permit installation of an Electrolux gas refrigerator.

Purpose of the truck is to rush speedy service to afflicted areas of the Commonwealth suffering from plagues, water contamination, typhoid fever and casualties of a general nature. All authorities who have inspected the truck have proclaimed it the most complete mobile assemblage of scientific equipment in the United States for this type of work.

In addition to the Electrolux, the equipment of the laboratory includes a stove and water heater, all operated with compressed gas for which a month's supply is carried.

The Ephebic Oath

The Ephebic Oath taken by the young men of Athens when of age for citizenship:

> **"We will never bring disgrace to our city by any act of dishonesty or cowardice, nor ever desert our suffering comrades in the ranks; we will fight for the ideals and sacred things of the city, both alone and with many; we will revere and obey the city's laws and do our best to incite a like respect and reverence in those about us who are prone to annul them and set them at naught: we will strive unceasingly to quicken the public's sense of civic duty; and thus in all these ways, we will strive to transmit this city not only not less but greater, better and more beautiful than it was transmitted to us."**

All graduates of the College of the City of New York now take this oath. It is good for any school.

COMMERCIAL SECTION

WALTER C. BECKJORD, Chairman J. W. WEST, Jr., Secretary N. T. SELLMAN, Vice-Chairman

Massachusetts Plumbers Approve Boston Sales Policy

APPRECIATION

To the BOSTON CONSOLIDATED GAS COMPANY

—for its just consideration of the problems which confronted master plumbers relative to the sale of gas appliances;

—for adopting a fair sales policy conceding to master plumbers advantages which they had never before enjoyed;

—for establishing, thus, a precedent which, in view of the company's great prestige, other gas companies saw the wisdom of following;

—and for indicating in other ways, as exemplified by tonight's hospitality, a spirit of friendliness, helpfulness and co-operation which has encouraged and benefited the master plumbers of this Commonwealth;

—this appreciation is gratefully addressed by the MASSACHUSETTS STATE ASSOCIATION OF MASTER PLUMBERS.

Franklin C. Darling, *President*

J. Harry McMourty, *Secretary*

MORE than 200 members of the Massachusetts State Association of Master Plumbers were guests of the Boston Consolidated Gas Company, Boston, Mass., December 7, at a dinner for discussion looking toward the further development of a cooperative sales plan with appliance dealers which has been in force for the past year.

At this time it was brought out that during the first eleven months the company-dealer plan has been in force the plumbers sold through cooperation with the gas company more than $175,000 worth of gas equipment, which represented about 40 per cent of the company's sales. In addition, the plumbers bought a great deal of equipment direct from manufacturers.

Upon the conclusion of the dinner, the plumbers presented the company with an "Appreciation," which is reproduced herewith.

Walter C. Beckjord, vice-president and general manager of the Boston company, is convinced that substantial progress has been made toward even closer cooperation between his organization and dealers by the adoption of the plan, and he feels that further advancement in this direction lies ahead because of the mutual benefit derived from the cordial relations existing.

A.G.A. Greets Conrad N. Lauer

While presiding over the annual meeting of the American Society of Mechanical Engineers, in session in New York, December 5, Conrad N. Lauer, president of the Philadelphia Gas Works Company, received a greeting from the American Gas Association. The message, which was signed by Arthur Hewitt, president, and Alexander Forward, managing director, was as follows:

"The annual meeting of the Society of Mechanical Engineers, with a leading executive of the gas industry as its president, provides an appropriate occasion to acknowledge the vital part the members of the society have played and still are playing in the development of the gas industry. It is most fitting, therefore, that the American Gas Association sends hearty greetings and well wishes for a most successful gathering."

Mr. Lauer's term as president of the society was a significant one and under his leadership many important advances were made.

INDUSTRIAL GAS SECTION

E. L. WILDER, Chairman · C. W. BERGHORN, Secretary · F. B. JONES, Vice-Chairman

Promotional Rate for Volume Water Heating Will Improve Load Factor

By Stanley B. Finch

Chairman, Large Volume Water Heating Committee, Industrial Gas Section

THE heating of water with gas for use in apartment houses or commercial buildings during the late spring, summer and early fall months, the hot water being supplied during the cold months by other fuels, is a matter of great interest both to the gas company and property owner. The apartment house owner has recognized the desirability of gas as a fuel, is fully cognizant of the cleaner, better and more efficient hot water service that he can give his tenants, but yet it is imperative that he analyze this service in terms of cost and that the gas cost be competitive or nearly competitive with that incurred by the utilization of other fuels.

In order to obtain any substantial portion of the very desirable summer water heating load, the cost of gas must be on a competitive basis with that of other fuels.

The thought is not entirely new, as several cities have been successful in obtaining at least a portion of this load by offering a selective rate for this class of business.

This paper is written with the idea that some companies, due to their load characteristics, as to load factor, etc., could very well increase their sales by ten to fifteen per cent over a period of five years, without materially increasing either distribution or plant investment, by offering a special rate carefully prepared and free from any claim of discrimination.

Such a load would be instrumental in helping to straighten out the yearly sales curve, and thus bring about economies in the cost of manufacture and distribution of gas, or in natural gas properties where gas is purchased on a demand and commodity form of rate, to permit its purchase at a lower average cost.

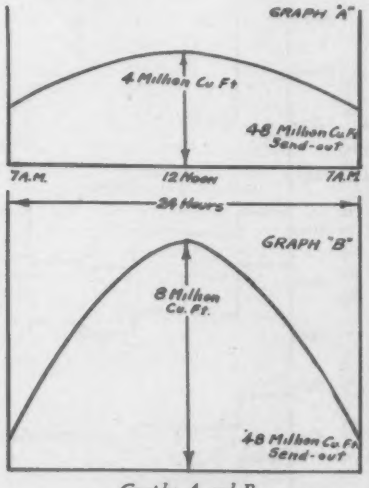
The theory of this rate is that there is available a given volume of business that cannot be obtained under existing rate schedules; that this business must be taken on at the base cost of producing and delivering this gas with a very slight profit; that such business so acquired will tend to produce sufficient overall economies as to ultimately enable a general rate reduction; thus producing a saving to all classes of consumers.

From a gas sales analysis, covering one particular company, it is ascertained that there are 109,000 families living in apartment houses having more than six apartments per building. Our studies indicate that the approximate average monthly gas consumption per family for water heating in apartment houses is 3.642 cu.ft.

This would result in a monthly added load of 400,000,000 cu.ft. per month if the hot water used by all these families during the summer time could be heated with gas.

All rates with promotional features are based on improved load factor. The idea upon which a promotional rate is based is the greater number of hours use of the company's facilities. Basicly, we are endeavoring through a promotional rate to improve load factor.

Load factor may be defined as the average sendout divided by the maximum sendout, taken over any unit of time that may be desirable. As a simple case, consider the two graphs A and B as representing a sendout for any period of time—day, month, or year—of two distribution systems of equal capacity, but Graph A with a maximum hour of four million cubic feet and Graph B with a maximum hour of eight million cubic feet, both systems handling forty-eight million cubic feet for the period. The load factors of the two systems are as follows:



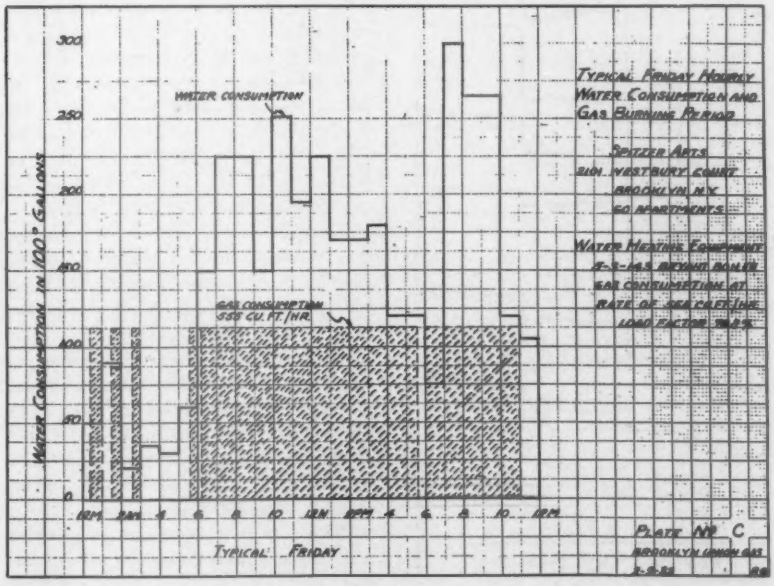
Graphs A and B

Graph A

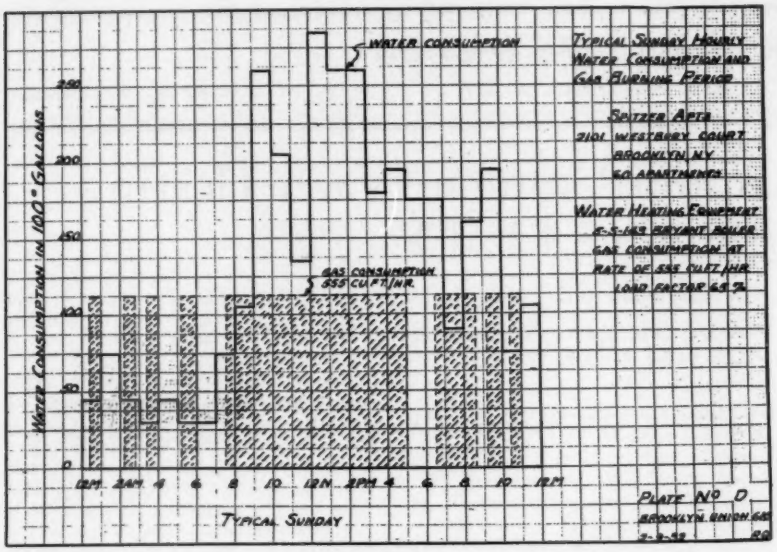
$$\text{L. F.} = \frac{\text{Average hour}}{\text{Maximum hour}} = \frac{2}{4} = 50\%$$

Graph B

$$\text{L. F.} = \frac{\text{Average hour}}{\text{Maximum hour}} = \frac{2}{8} = 25\%$$



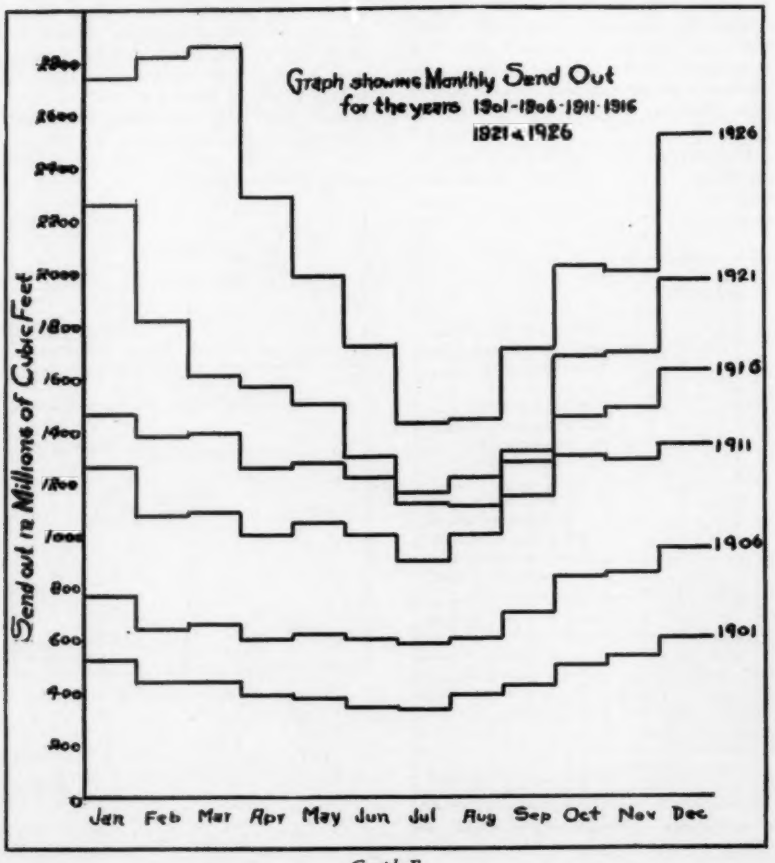
Graph C



Graph D

The improved load factor in the case of Graph A over Graph B means that in the situation cited by Graph A only one-half of the facilities of the distribution were used, leaving available the remaining capacity of the distribution system for added business.

Graph E shows the monthly sendout for the years 1901, 06, 11, 16, 21 and 26, that is, in five-year periods. It is quite evident that a valley exists particularly during the months of April, May, June, July, August, September, and October, a period of seven months, and that over a period of years the valley has become more marked. Conversely, the use of gas during the summer months over a period of years has not grown as rapidly as during the winter months. The summer off-peak water heating rate would be designed to promote business during this time. The tendency through adequate house heating rates in the future, will be to build up the load during the winter months.



Graph E

Graph F (see next page) shows the effect on the monthly gas sendout and load factor of an assumed volume of summer water heating load. The solid line represents the average gas sendout by months of the Company in question, over the five-year period from 1926-1930 inclusive. A glance at this graph shows that there is an appreciable "valley" during the summer months of the year.

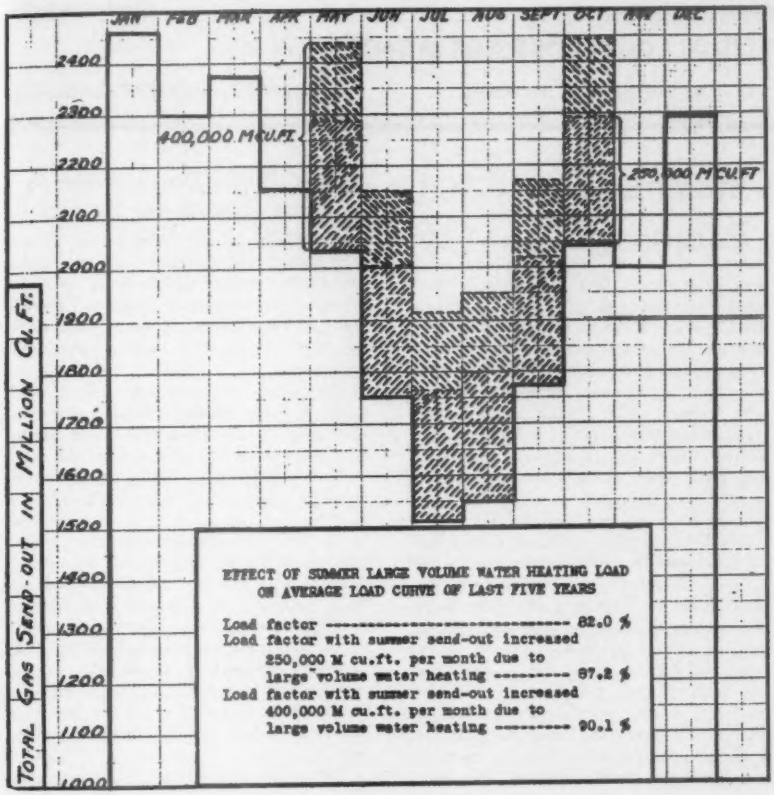
The cross hatched portions of the chart show the effect which a given volume of summer water heating load would have in filling up this valley.

The six summer months of May to October, inclusive, will contain the greater part of the water heating load. There will also be a certain load in April but this has not been shown on the graph. The reason for the seasonal variation in the water heating load is the fact that during the winter months, hot water is usually obtained from the central steam heating plants which are coal or oil fired.

In the preparation of the chart, increments of 400 million cubic feet per month were added to the six summer months' gas consumption. These increments are indicated on the chart by cross-hatching. By adding 400 million cubic feet per month for six months, the total sendout would be increased by 2,400,000,000 cubic feet or 9.9% and the load factor would be increased from 82% to 90.1%.

It improves the daily load factor because gas burning equipment designed particularly for heating water in apartment houses produces a load factor of approximately 75%. This is brought about by providing only sufficient storage of hot water to take care of the required supply over peaks. Gas burners are designed to operate 20 hours out of the 24 hours. Graphs C and D indicate the gas consumption of such equipment in actual operation in a representative apartment house.

Therefore, this summer water heating load has a distinct advantage from a 24-hour load factor point of view; as well as improving the yearly load factor.



Graph F

Mid-West Sales Conference To Open in Chicago, Feb. 14

AT a recent meeting of the Mid-West Regional Gas Sales Council it was decided to hold the Seventh Annual Mid-West Regional Gas Sales Conference of the American Gas Association at the Hotel Sherman, Chicago, Illinois, Tuesday and Wednesday, February 14 and 15.

The gas conference will immediately precede the sales conference of the Great Lakes Division of the National Electric Light Association, which will take place at the Edgewater Beach Hotel, Chicago, Thursday and Friday, February 16 and 17. A joint meeting for those attending these conferences is being arranged for the evening of February 15 at the Edgewater Beach Hotel at which time cooperative sales activities will be the subject of discussion.

A program of strong speakers discussing today's gas selling conditions has been arranged. Gas appliance manufacturers are especially invited to attend the conference and participate in the program and discussions, and the second morning's session will be devoted entirely to a manufacturrs' symposium on sales trends.

Stanley Jenks, Northern Indiana Public Service Company, Hammond, Indiana, is chairman in charge of the conference, and E. J. Boyer, Minneapolis Gas Light Company, Minneapolis, Minnesota, is vice-chairman.

Members of the Council include: A. F. Davey, Wisconsin Public Service Corp., Sheboygan, Wis., Howard Davis, Consumers Power Co., Jackson, Mich., W. R. Evans, The Peoples Gas Light & Coke Co., Chicago, Ill., D. H. Frazier, Jr., Battle Creek Gas Co., Battle Creek, Mich., R. O. Jasperson, Milwaukee Gas Light Co., Milwaukee, Wis., W. L. Jones, St. Louis County Gas Co., Webster Groves, Mo., G. C. Klopf, Wm. A. Baehr Organization, Inc., Chicago, Ill., C. A. Luther, The Peoples Gas Light & Coke Co., Chicago, Ill., F. X. Mettenet, Public Service Co. of Indiana, Indianapolis, Ind., W. F. Miller, Public Service Co. of Northern Illinois, Chicago, Ill., C. A. Nash, United Light & Power Engineering & Construction Co., Davenport, Ia., F. M. Rosenkrans, The Gas Service Co., Kansas City, Mo., and J. M. Curtin, The Laclede Gas Light Co., St. Louis, Mo.

BOOK REVIEWS

Domestic Utilization of Gas: The Principles Involved. By N. S. Smith and R. N. Le Fevre. 154 pp. 5½ x 8½". Profusely illustrated. Pub. by Walter King, Ltd. London.

As stated by the authors, this book is principally directed toward the gas salesmen and student salesmen who want some technical knowledge but not a complete and detailed engineering education in relation to the gas industry.

This book lends itself directly to comparison with the book of similar name by Apmann, designed for American practice. Striking differences are immediately discernible. Apmann's book devotes only a minimum of space to illumination and deals with space heating in a non-technical manner. Contrariwise, gas fires and room heating are given considerable attention in the English book, and central heating is practically disregarded.

The great prevalence of the geyser in European water heating practice at once distinguishes this section from American practice.

The most valuable material in this book from the American point of view is the rather complete discussion of ventilation and flues for various domestic appliances. This is probably in line with the very interesting and complete research which the English have been doing for quite some years in this field.

In the absence of a British testing laboratory paralleling ours, this book should be useful to give the younger members of the gas industry some knowledge of the mechanism of gas combustion, and through it a basis for differentiating between good and bad appliances as well as good and bad installation practice. From our viewpoint this is not so important for the average worker in the industry, since the Laboratory Approval Plan has eliminated the need for such work on the part of the individual gas companies.

It would be wrong to pass this book without making mention of the final chapter which is devoted to gas lighting. It will naturally be helpful to those interested in the advances made in this field by the British gas industry.

—C. G. S.

Housing Objectives and Programs. 343 pp. 6 x 9". Pub. by The President's Conference on Home Building and Home Ownership, Washington. Cloth $1.15.

The present volume is the eleventh in the series of final reports of committees of The President's Conference on Home Building and Home Ownership. The volume, as the title implies, is the summary volume of the group, stating the objectives of the conference and the pro-

(Continued on page 33)

NATURAL GAS DEPARTMENT

GEORGE W. RATCLIFFE, Chairman A. E. HIGGINS, Secretary FRANK L. CHASE, Vice-Chairman

Canada Begins Systematic Odorization at Edmonton

ODORIZATION of the natural gas supply of the City of Edmonton, Canada, has been commenced by Northwestern Utilities, Ltd., following experiments which have been carried on for several months. Announcement of this was made by Julian Garrett, manager of the company, who said:

"After carrying on various experiments the company, a few days ago, commenced the odorization of the natural gas, injecting it, however, for short periods only. The results so far have been highly satisfactory."

The odorant used is a sulphur compound; and is injected into the pipe lines just before the gas enters the city mains.

This is the first instance in Canada of the systematic odorization of natural gas; the purpose being to enable consumers to detect leaks and safeguard against fire and explosion. The Viking gas, with which Edmonton is supplied, is a dry and naturally odorless product.

In other important Canadian fields the problem in recent years has been to get rid of the odor. The Medicine Hat gas is odorless, and so far odorization has not been undertaken. The gas originally supplied to Calgary and other communities on the Canadian Western Natural Gas, Light, Heat & Power Co. system was originally a sweet gas from Bow Island, but later this was supplemented with residual gas from Turner Valley, which had a considerable sulphuretted hydrogen content. The Turner Valley gas is treated in a scrubbing plant which extracts practically all the sulphuretted hydrogen, leaving only sufficient to facilitate detection of leaks.

A problem similar to that of Turner Valley developed in Ontario when natural gas with a strong sulphur content was first piped from the Tilbury field. The Southern Ontario Gas Co., as early as 1913, attempted central purification, when it first supplemented the sweet gas supply from the fields further east with the Tilbury product. These experiments were unsuccessful, but later the Union Gas Co. introduced a process worked out by the Koppers Co. which worked successfully, and a similar scrubbing plant was also erected by the Southern Ontario Company.

Gas Plays Part in Oceanographic Laboratory

IN any compilation of the novel uses to which gas and gas appliances are adapted, none would prove more interesting than the story of how this equipment is playing a stellar role in the advancement of pure science.

Fortunately situated on Puget Sound, the University of Washington at Seattle has long been provided with all of the natural facilities necessary for the study of that fascinating yet little-known subject called oceanography. Oceanography, the scientists tell us, is a branch of physical geography that treats of oceanic life and phenomena. Only recently, however, has the University been able to dedicate its new $200,000 structure housing the Oceanographic Department, made possible by a gift from the Rockefeller Foundation.

This long-awaited event, unique in the annals of higher education, was further honored by a world-famous scientist, Dr. Robert Andrew Millikan, Nobel prize winner and physicist of the California Institute of Technology, who delivered the main address at the dedication ceremonies

An important phase of the oceanography program is to be the actual research done on board the "Catalyst," a seventy-five foot vessel, which is part of the equipment for the laboratory. The "Catalyst" is to be used for extensive cruising in Puget Sound and off-shore in deeper waters. This vessel is declared to be a modern floating laboratory fully equipped with all necessary equipment for the oceanographic staff. The ship has accommodations for a scientific party of twelve, in addition to a crew of four men. Its cruising radius is calculated at an equivalent of 4,000 miles.

It is in the galley of the "Catalyst" that gas and gas equipment is called upon to perform its share in the pursuit of scientific work. Here an Electrolux refrigerator, Ruud water heater and a Wedgewood gas range provide the staff and crew with all modern comforts of home. These appliances are operated with Flamo gas, product of the Standard Oil Company of California.

Tells of Gas Development in Santa Monica Bay District

A REVIEW of the development of the natural gas industry in the Santa Monica Bay district was delivered by F. H. Bivens, vice-president of Southern Counties Gas Co., Los Angeles, Calif., before a meeting of the Ocean Park Business Men's Association.

The antiquated gas equipment which supplied Santa Monica and adjacent territory prior to 1916 was purchased during that year by Southern Counties Gas Co., and since then the service has been continuous and constantly developed, Mr. Bivens said:

"In 1917, the company served a population of 44,000 in this unit of its system," declared Mr. Bivens. "Today in this district, under the direction of J. C. Gilbert, our district manager, we serve a population of 142,000. Fifteen years ago we had only $679,000 in invested capital here. Today our capital investment in Santa Monica, Ocean Park, Culver City and other communities in this district, exceeds $4,700,000.

"When we bought the old gas properties here, there were only 30 odd employes. Today on our regular payroll are 163 employes. Fifteen years ago a rather inferior quality of manufactured gas was being served to consumers. Today every consumer in Santa Monica is connected with every major natural gas producing field in California.

"Prior to the advent of natural gas in this district, in February, 1927, you were getting a mixed gas with about 740 heat units per cubic foot. Today, with natural gas, you are getting 1,100 heat units per cubic foot.

"You were paying then $1.38 per 1,000,000 heat units. Today you are getting 1,000,000 heat units for 76 cents.

"This is a reduction of 44.9 per cent in the cost to you per 1,000,000 units of heat. In comparison with this, your population has increased 221 per cent; the company's investment has increased 596 per cent.

"In line with the company's policy to provide, at all times, dependable service to its customers, we have now, in Venice, a storage capacity of 4,400,000 cubic feet, as compared with storage capacity of only 400,000 cubic feet when we took the properties over."

Mr. Bivens closed his address by citing numerous new uses for natural gas in industry, many of which have been developed by the company's engineers. Kelp drying, walnut drying, fish canning, asphaltic concrete paving production, and the firing of kilns in the ceramic and tile industry were included in the list of new uses.

PUBLICITY AND ADVERTISING SECTION

JAY C. BARNES, Chairman ALLYN B. TUNIS, Secretary HENRY OBERMEYER, Vice-Chairman

Public Information Aspects of the Natural Gas Change-Over in San Diego*

By D. H. Perkins

Superintendent, Gas Distribution Department, San Diego Consolidated Gas and Electric Company

THE successful culmination of a change-over to natural gas in San Diego affecting nearly a quarter million appliances and involving intimate contacts between a crew of 500 men and one or two members of approximately 60,000 families within a period of sixty days, naturally presented a serious problem of consumer acceptance.

It is obvious that a fully informed public thoroughly sold on the idea of the change-over would minimize the difficulties of approach and eliminate to a large degree the hazard of accident. For this reason publicity was made a major operation of the change-over and carefully studied from every angle, the first consideration being the selection of mediums. Incidentally, one of the first mediums to fall by the wayside was the moving picture. While the company had facilities for making a movie, it was decided that at best it could be shown to only a few clubs or groups and would necessarily be of too technical a nature to interest any considerable proportion of individuals.

The feeling quickly prevailed that the backbone of the publicity campaign should be in a medium which reached every single consumer and over which the company had entire control so that it could convey every message it desired in exactly the words it chose.

Since not even the newspapers fulfilled this requirement, it was determined to print a company newspaper once a month beginning two months before the actual change-over date, and mail it to every customer.

Supplementing this, the local newspapers were utilized with a series of weekly half-page advertisements. This permitted of thirteen newspaper advertisements and three issues of the company paper during this two-month period preceding the change-over, the third issue of the company paper being mailed coincident with the beginning of actual change-over work. In addition to this, short radio announcements were used from three to five times a day during such periods as special timely information required. Poster boards were also used during these two months with reminder copy.

The preliminary advertising and *Natural Gas News* articles were almost entirely informative, dealing with the history of natural gas, its advantages in a general way, and the progress of the work in bringing the new fuel to the community.

The company paper, *Natural Gas News,* was four pages, 7 x 10 inches in size, with three newspaper-size columns and plenty of cuts. Newspaper style was followed in its make-up.

This allowed considerable detailed information and it carried many stories about the company, preparations being made for the change-over and similar items. Perhaps a few headlines will best indicate their type. The first issue contained: "380-Mile Pipeline To Bring New Fuel"; "Emergency Plant To Be Maintained"; "Gas First Feared as Wild Spirit"; "Romance of Natural Gas"; "Company To Adjust Stove Burners Free"; "Will My Gas Bill Be Cut Down?" This was the issue mailed sixty days before the change-over began.

The second issue, thirty days before the change-over, contained such headings as: "District Plan Used as Simplest Method"; "How New Rates Are Established for Natural Gas"; "Must Learn Smell of Natural Gas"; "Miles of Pipe Under Streets"; "Who Owns the Gas Company?"

Then the third issue, timed to reach the consumer a day or two before the change-over began, carried a front-page cartoon showing a woman in her kitchen and a sign over the stove's top burners which read, "O. K. if Turned Low." There was also a sign over the water heater saying "Don't." And another "Don't" over a radiant heater. This was a warning not to use anything but the top burners of the stove after natural gas was turned on in her district and until the adjusters arrived at her home.

The story directly under this cartoon went into detail with definite instructions what to do and what not to do during this important interim. Similar information was also mailed in postcard form to residents of each district two days before natural gas was turned into that particular district.

Other features of the third issue of *Natural Gas News* were: "What Shall I Do While I'm Waiting for the Adjuster?"—being reiteration of the front-page story; "Free Adjustment of Gas Burners"; "Perkins Is Worried About Your Vacation"—being a request to arrange to have someone at home when the gas adjuster called, even if the consumer was on a vacation at the time; "Questions and Answers"; "Goodbye Old Gas, Hello Natural"; "A Notice Will Be Mailed to Each House"; "I Smell Gas, Don't Light It,"—being another reminder that consumers must now accustom themselves to a new odor as a danger signal of escaping gas.

Of course there were many other stories in the three issues covering progress at the company school, a map and story dealing with the district plan for installing natural gas, final tests on commercial change-over, how to read gas meters, etc. A few miniature advertisements were also scattered about to break up the pages. The man quoted in any story was also pictured therein. There are always numerous items of interest about a corporation which serves the whole community.

The next publicity channel in importance was the daily newspapers. This was approached in the following manner. The change-over was to affect directly practically every household in the community. It was to introduce a new commodity with which the population was unfamiliar and which they would have to use several times daily. It was our belief, therefore, that the change-over was the biggest news story of the day and that any information about it was an opportunity for the newspapers to serve their subscribers, which fact any live newspaper would recognize if properly sold on the idea.

For this reason our task was to sell the newspapers on the fact that we were going to be a prolific source of good news for the next sixty or seventy days.

Therefore, after a certain quota of the usual stories concerning the initiation of the project had been given to the papers, we undertook to invite each editor, editorial writer and some star reporters on a tour of inspection of our school for adjusters. One at a time we took these men through the company's school where 500 men were preparing themselves for the big change-over job which was to perform a service to some 60,000 families in record time. These trips required about an hour each and by the time a newspaper man had seen all the operations these 500 men were going through, all the appliances which the company had gathered for the men to work on, the text books it had prepared for their study, the courses they were taking, the tool kits with which they were to be equipped, the portable shops built for field

* Reprinted by Courtesy of Byllesby Management.

work, the maps, routes, instructions and facilities supplied for their use, the hundreds of thousands of parts assembled for the adjustments, the card system kept up to date on the consumers, and the thousand and one details so necessary to a successful consummation of the job, each of those editors, reporters and editorial writers was deeply impressed with the fact that something of gigantic proportions was going on and that the company was doing everything possible in its power to see that the job was done efficiently and with a minimum of inconvenience to the customer.

It might be of interest to know that we selected the city editor of a paper for the first inspection tour from his paper. This often resulted in a request to take one of his star reporters through so that he could write us a story.

At least it made it very easy to bring in stories as the job progressed. Editorial writers were the last taken through the school just before the change-over began. Our suggestion to them was that perhaps they might find material worthy of editorial treatment because it concerned the whole mass of subscribers. Particularly we stressed with these editorial writers the service they might give in lessening the hazards of the change-over by calling attention to the fact that natural gas, while not a more dangerous product than manufactured gas, was nevertheless a new product with new characteristics with which the consumer must acquaint herself.

With this splendid preliminary advertising and publicity, the beginning of the actual change-over marked another type of advertising. Generous space was used each day preceding the turning in of natural gas to a district. This space was utilized with a map of the district into which natural gas was to be turned the next day and a warning to residents of that district as to how to act during the transition period, a repetition of the information given in the third house organ and on the postcard. In addition to this the newspapers, now fully sold on the news value of the change-over, printed small front-page boxes the same day the maps ran in advertisements.

This was supplemented by short radio announcements morning, afternoon and night on days preceding the change-over in each district. These announcements directed the attention of residents of the district to the advertisements and front-page boxes of the newspapers for details.

The half-way mark of change-over offered an additional opportunity for a good general news story and reiteration of numerous facts concerning the whole project, as also did the actual completion of the job. Certain major or unusual change-overs during the campaign also gave extra opportunity for good stories. These later stories also afforded a chance to express appreciation of the splendid cooperation on the part of the consumer.

Thus a rather difficult problem, from the standpoint of consumer relations, was actually turned into a good-will campaign by fully informing the newspapers and the people concerning the tremendous problems and interesting details of the change from manufactured to natural gas. By this method the public, understanding our difficulties and the painstaking preparations, actually became our allies and a part of the successful culmination of the big job of giving natural gas to 60,000 households.

Preparing Correspondence Course on Air Conditioning

THE rapid advances in the art of air conditioning, and the change in the price of fuels, together with the rapid progress in their efficient domestic combustion, have made it necessary for all who participate in this field to seek information about these developments and men in all branches of the art are being obliged to extend their educational equipment to cope with the problems presented.

To meet this need a correspondence course is under preparation by Dr. Wilbert J. Huff, professor of gas engineering, Johns Hopkins University, and Dr. John C. Holtz, formerly of the staff of the same department of the Baltimore institution. They are compiling this information in the form of fifteen lessons adapted to the needs of most of those who engage in house heating and related activities.

Every effort will be made to present the essentials in as simple a manner as possible in order that the contents may be valuable to a wide circle, yet the subjects will be treated in an adequate manner with particular attention to recent researches and with full annotation, so that the course will be valuable to many who have advanced in the art, but wish to give further study to certain phases.

The course will treat of, and should develop in the student a familiarity with, the underlying scientific fundamentals, enabling the worker to cope with a wide variety of problems and many different types of installation rather than develop a limited practical knowledge of only a few types of equipment.

The course as outlined at present contains the following topics somewhat in the order of the lessons proposed:

1. Units and measurement of heat.
2. Heat transmission of building construction and insulation.
3. Heat losses due to infiltration of air.
4. Estimating total heat losses.
5. Heat transmission of direct radiators and convectors.
6. Heating systems and boiler requirements.
7. Estimating seasonal heating requirements and comparison of fuels.
8. Effect of insulation on heating requirements.
9. Physiological reactions of human beings to temperature and humidity.
10. Relation of temperature, humidity and air motion to comfort and health.
11. Ventilation and air motion.
12. Principles of wet and dry bulb thermometry and humidification of air.
13. Applications and limitations of heating and humidifying air for residences.
14. Cooling and dehumidification of air for residences.
15. Air conditioning places of public meeting.

Upon successful completion of the course by the student, the instructors will attest the same by means of a certificate. Inquiries and applications for registration should be sent to Wilbert J. Huff, Ph.D., 105 Tunbridge Road, Baltimore, Maryland.

Students may enroll at any time.

P. U. A. A. "Better Copy" Contest Closes February 18

The Public Utilities Advertising Association will conduct another "Better Copy" contest, according to an announcement made by E. Frank Gardiner, of the Midland United Company, Chicago, president of the association.

F. W. Crone, of the New York Edison Company, has been appointed chairman of the contest committee, which includes some of the best known public utility advertising men in the country.

The contest will cover advertising done during the year 1932 and awards will be made at the annual meeting.

Classes of advertising eligible for awards in the contest are as follows:

Gas Newspaper Advertising, to include all kinds of gas advertising—Two Awards.

Electric Newspaper Advertising, to include all kinds of electric advertising—Two Awards.

Transportation Newspaper Advertising, to include all kinds of transportation advertising—Two Awards.

Outdoor Advertising, to include posters, billboards and signs of all kinds—Two Awards.

Electric Window Displays—Two Awards.

Gas Window Displays—Two Awards.

General Utility Advertising, to include all other newspaper or magazine advertising not mentioned above—Two Awards (Manufacturers may enter here).

Campaign Advertising, to include best series of newspaper advertisements (institutional, appliance or sales promotion) open to gas, electric, and transportation companies.

All entries must be in the mail on or before February 18, and should be sent to F. W. Crone, chairman, "Better Copy" Committee, The New York Edison Company, 4 Irving Place, New York, N. Y.

TECHNICAL SECTION

J. A. PERRY, Chairman H. W. HARTMAN, Secretary O. S. HAGERMAN, Vice-Chairman

Managing Committee Meets in Cleveland

THE organization meeting of the Technical Section Managing Committee was held at the Cleveland Hotel, Cleveland, Ohio, Saturday, December 10.

Calling the meeting on Saturday represented a distinct departure from precedent and is part of a general policy of the Section to cooperate with member companies in reducing the cost of meetings.

The location of the meeting was selected by ballot as most convenient for all members. Saturday permitted all members to take advantage of the week-end reduced rate of 1.1 the round-trip railroad fare and has the additional advantage of only requiring members to be away from their work one-half day.

The splendid attendance amply justified the experiment. Chairman J. A. Perry announced the appointment of the following committee chairmen:

COMMITTEE CHAIRMEN APPOINTMENTS

Committee	*Chairman*
Chemical	E. J. Murphy, Brooklyn Union Gas Co., 191 St. James Pl., Brooklyn, New York.
Subcommittees:	
Analyses & Tests	J. F. Anthes, Brooklyn Union Gas Co., 176 Remsen St., Brooklyn, New York.
New Developments	M. C. K. Jones, Consolidated Gas Electric Light & Power Co., Baltimore, Maryland.
Distribution	C. A. Harrison, H. L. Doherty & Co., 60 Wall St., New York.
Subcommittees:	
Pipe Joints	Erick Larson, Long Island Ltg. Co., Bay Shore, Long Island, New York.
Pipe Coatings and Corrosion	Geo. H. Boyd, Consolidated Gas Co. of New York, 4 Irving Place, New York.
Unaccounted-for Gas	J. M. Pickford, Northern Indiana Public Service Co., Hammond, Indiana.
Cast Iron Pipe Standards	C. C. Simpson, Consolidated Gas Co. of New York, 4 Irving Place, New York.
Meters	C. H. Stevick, Consolidated Gas Co. of New York, 4 Irving Place, New York.
Gas Production	P. E. Eddy, The Peoples Gas Light & Coke Co., 122 So. Michigan Ave., Chicago, Illinois.
Subcommittees:	
Coke	R. E. Kruger, Rochester Gas & Electric Corp., Rochester, New York.
By-Products	C. R. Locke, Chicago By-Product Coke Co., 3500 S. Crawford Avenue, Chicago, Illinois.
Water Gas	L. J. Eck, Minneapolis Gas Light Co., Minnesota.
Builders' Section	C. I. Tenney, American Gas Construction Co., Minneapolis, Minnesota.
Beal Medal Award	I. K. Peck, Midland United Co., 122 So. Michigan Avenue, Chicago, Illinois.
Nominating	I. K. Peck, Midland United Co., 122 So. Michigan Avenue, Chicago, Illinois.

Section Conferences

Mr. Perry reported that the Executive Board had approved the holding of a Distribution Conference as in former years. The Distribution Committee, under the chairmanship of C. A. Harrison, is at present working on a program for the Conference, and expects to announce shortly selection of the time and place. The probabilities are that the Conference will be held in some Mid-Western City such as Cleveland, Detroit, Pittsburgh, etc., on or about the latter part of March or early in April. In order to keep expenses of visiting delegates to a minimum, he announced the following general policies:

The Conference will be limited to two days' duration, and will preferably start on Monday or Tuesday. The secretary has been instructed to canvass hotels in all available cities in order to obtain the best possible rates for the Conference, and to arrange if possible for reduced fare transportation.

In preparing the program for the Conference, it has been suggested in so far as possible that this be devoted to a full discussion of the committee reports, and the research projects at present under way, thus leaving more time at the annual convention for the presentation of papers and addresses on technical subjects.

Mr. Perry further reported that while the Board had not approved reinstatement of the Joint Production and Chemical Conference as formerly held, special permission had been obtained to hold a Joint Committee Conference of the Production and Chemical Committees. Approval had further been obtained for the Chairman of the Technical Section to invite the executives of a special list of company members to send a representative or representatives of their company to the Joint Committee Conference if they desired to do so. This way it was felt that there would be retained for the production and chemical engineer the benefit of a full discussion of his specific problems and at the same time any companies who wish to participate in this Committee Conference would have an opportunity to do so.

A Program Committee with representatives of the chemists and production engineers is at present planning the program and selecting time and place.

It was decided that it would be most preferable to have the Joint Committee Conference held in some city on the Eastern Seaboard, as the great majority of engineers of manufactured gas plants are located most

adjacent thereto. It was also thought that this would give an opportunity to those engineers who would not be able to attend the annual convention in Chicago.

The scope and activities of all the major committees were thoroughly discussed, among which might be mentioned the following:

The Chemical Committee, under the chairmanship of E. J. Murphy of The Brooklyn Union Gas Company, has under consideration a revision of the *Gas Chemists' Handbook*, which involves its publication in the form of a series of pamphlets rather than as a complete volume as heretofore. Volume 1 of this series would be devoted primarily to gas analysis, and would contain in addition to the description of methods a very considerable amount of material as to their interpretation. The individual pamphlets would be designed to sell at a price similar to the Industrial Gas Section pamphlets on "Combustion," etc.

The committee will also make a special study of the latest developments on the gum problem, and special developments in the field of purification. A review of the best methods for the determination of moisture in gas, as well as a review of the most recent data in connection with the calorimetric tests of gas will be included in the program.

C. A. Harrison, chairman of the Distribution Committee, requested Mr. Conner to submit the following progress report with regard to research conducted at the Laboratory to develop a field test of welded joints.

"A study of this subject was started somewhat over a year ago. From a preliminary investigation supplemented by a rather extended field survey, it appeared that a decided need existed for a non-destructive method of testing welded pipe joints which would be practical for field application. Accordingly, the principal part of the work to date has been in the development of such a test.

"A search of available literature indicates that there was no suitable method which could be used for testing welded pipe joints in the field and it appeared necessary to develop such a method in the Laboratory. After a full consideration of the subject it was decided that some application of the magnetic method of testing showed the greatest possibilities and work accordingly proceeded along this line. A weld test meter for direct application to the surface of a welded pipe joint was therefore designed and a model constructed. For the necessary preliminary work, a selected stock of 4-inch standard steel pipe was obtained, all the physical characteristics of which were known, and a number of welds of various degrees of soundness were prepared by an expert welder, using 2-foot lengths of pipe.

"In attempting to magnetize the pipe so that the weld test meter could be operated, it soon became evident that considerable care was necessary in the selection of a means by which this could be accomplished. A large electromagnet was designed, using a laminated core of soft steel sheets wound with a large number of turns of copper wire. The pole pieces were shaped to fit the curvature of the pipe. This magnet was then applied to the pipe with the weld placed half-way between the pole pieces.

"With the magnet energized by a direct current of the proper value, the area of the weld, as well as the pipe on either side of the weld, was thoroughly explored with the weld test meter and its readings recorded. For convenience of procedure the circumference of the pipe was divided into ten equal arcs approximately 1⅜ inches in length, each of which was numbered.

"After a number of specimens had been examined by the use of the meter and the necessary information recorded, the entire specimen was split up into ten coupons. X-ray photographs of these coupons were then taken and a comparison made with the readings given by the weld test meter.

"It was found that the degree of soundness of the weld as determined by the weld test meter checked rather closely with that shown by the X-ray photographs. Defects such as lack of penetration, slag inclusions and cold shuts were very clearly demonstrated by both methods.

"Tensile tests of the various coupons are now being made in order to secure the actual physical strength of the welded joints. Several failures have been found to occur in the joint proper, and in others which have broken in the pipe it has been possible to assign the cause for such breakage. When the information obtained from this test is correlated with that from the readings of the weld test meter and the X-ray photographs, fairly conclusive data should be established.

"From the information now available, it seems that the weld test meter is capable of giving quite delicate indications of imperfections in the weld. As yet not sufficient data has been obtained to clear up all of the practical considerations governing the use of the instrument in the field, but there seems to be every reason to believe that these can be worked out successfully.

"The work thus far has been confined entirely to 4-inch steel pipe with the thought of developing the method, as far as possible, by the least expenditure of time and material. Plans are now being made to prepare welds in larger sizes, probably 16-inch, and to determine whether welds of such size can be tested successfully by the weld test meter. If this proves to be the case it is felt that the problem will have been largely solved."

Mr. Harrison also referred to the Report of the Subcommittee on Pipe Coatings and Corrosion, which is expected to be available shortly, and which was referred to in the December issue of the A. G. A. MONTHLY.

The Pipe Joints Subcommittee, in addition to its research on welding, will prepare for the approval of the Managing Committee specifications for the testing of the newer types of pipe joints at the A. G. A. Laboratory. These specifications, when approved, are intended to afford the manufacturer an opportunity to have special types of joints submitted to the Laboratory for approval as such joints are developed. This will also include testing of joint clamps.

A very full program was discussed for the Association's Research Associate at the Bureau of Standards on the subject of Pipe Coatings and Corrosion. This will include completion of the soil box test and report on interpretation of results, determination of value of field tests of coatings applied to short pipe sections, field work to indicate the value of predetermining soil corrosivity, etc.

P. E. Eddy, chairman of the Gas Production Committee, reported a full program of activities for the Subcommittee on Coke, Subcommittee on Water Gas, and Subcommittee on By-Products other than coke. The Production Committee held its organization meeting in the afternoon of the same day as the Managing Committee, and the details of its activity will be covered in a report of that meeting.

Mr. Perry advised that so many activities had been proposed for the Distribution Committee, that the Chairman—Mr. Harrison—had hit upon the device of assigning a number of such subjects to individual members of the main Distribution Committee as "Sponsors." The necessity for such sponsors arose because the three major committees of the Section covered such a broad field that it is impossible to appoint subcommittees on all subjects either proposed for activities, or which it is assumed the committee is covering. In keeping subcommittee organization within the limits of practical accomplishment, it is not desired that developments in aspects of their work should be neglected nor that any necessary follow-up on any former activities should be omitted. Such activities have, therefore, been assigned to these sponsors with the understanding that such sponsors shall have the duty of:

(a) Keeping in touch with developments throughout the year.

(b) Advising their Chairman of such developments and recommending action in the form of:

  (1) A paper at the Convention or at the Conference.

  (2) An article in the A. G. A. MONTHLY.

  (3) If developments make it essential, recommending the formation of a subcommittee.

This principle seemed so effective that it was extended to all committees of the Section.

In line with the policy of discussing the detail committee reports primarily at the Distribution Conference and at the Joint Committee Conference of the Production and Chemical Committees, it will be the endeavor this year to secure for the Technical Sessions at the Annual Convention the best possible Technical Section papers and addresses. It was decided to adopt the policy that all papers at the Technical Sessions be presented in abstract form, limited to not more than ten minutes. Written discussion of such papers will be solicited in

advance, and the author of the paper will be requested to make a summary of the written discussion for presentation immediately following the abstract of his paper. The meeting will then be thrown open for oral discussion with the thought that the principal issues will have been brought out in the abstract of the written discussion. Subject to any general policy adopted by the Association the meeting recorded itself in favor of three sessions at the Convention of not more than two hours each.

The following members were recorded as present:

J. A. Perry, chairman; O. S. Hagerman, vice-chairman; P. E. Eddy, chairman, gas production committee; C. A. Harrison, chairman, distribution committee; E. J. Murphy, chairman, chemical committee; H. Smyser Bair; Fred Denig; A. C. Fieldner; R. G. Griswold; R. S. Carter; D. P. Hartson; R. M. Kellogg (representing R. A. Carter); E. A. Munyan; J. G. O'Keeffe; I. K. Peck; C. A. Schlegel; Geo. Smith (representing C. H. B. Chapin); P. A. Stover; F. C. Weber; L. J. Willien; H. W. Hartman, secretary, technical section.

By invitation:

R. M. Conner, director, A. G. A. Testing Laboratory; L. J. Eck; C. R. Locke; F. D. Lohr; R. E. Kruger; J. G. Postles.

The Beal Medal—1897-1932

(Continued from page 10)

surviving members of the Beal family to continue to award the medal.

"That the Board with pleasure approved the suggestion that instead of awarding a solid gold medal, the method be changed to a bronze medal and $100 in gold, thus providing at once for adequate medal bestowal and some financial recognition of constructive work done by those who contribute to the industry's technical knowledge and development."

Thus we bring the history of the Beal Medal to the present day. Set apart by the sterling character and purpose of the men who conceived it,—gathering prestige through the achievements of its recipients throughout its long identification with the industry's progress,—it remains today the outstanding recognition and honor which our industry can bestow on any signal technical achievement.

It has never been lightly bestowed. Its achievement is a most worthy ambition for any technical member of the Association. That they may fully appreciate the opportunity they have for maintaining its glorious history through their own achievements, a circular invitation to compete for the medal will be issued by the Committee on Award. The spirit of this competition can best be expressed in the following resolution of appreciation adopted by the Managing Committee of the Technical Section, December 10, 1932:

"RESOLVED: That the Managing Committee of the Technical Section desires to express its appreciation of the recognition and constructive encouragement that has so unselfishly and generously been extended to its members by Mr. W. R. Beal, Mr. T. R. Beal, and the members of their families; and it believes it expresses the sincere hope of all technical men in the industry that their own efforts to deserve the award may in some measure keep fresh in their minds and the rest of the industry the splendid tradition of accomplishment left us by the donors of this medal."

Clark Belden Named Secretary of N. E. G. A.

CLARK BELDEN has been appointed executive secretary of the New England Gas Association, according to announcement made by I. T. Haddock, president. Mr. Belden has taken office and his headquarters will be at 41 Mount Vernon Street, Boston, Mass.

Mr. Belden is a former newspaperman and has served the advertisement departments of large insurance companies. Before joining the National Electric Power Company, in New York, Mr. Belden was assistant secretary and later executive vice-president of the Connecticut Chamber of Commerce.

Utility Association Secretaries Meet

A CONFERENCE of public utility association secretaries, the first in two years, held December 14 in Milwaukee, Wisconsin, was attended by fifteen secretaries from different sections of the country. Reports were presented on the status of legislation, particularly that affecting utilities, in the sections represented which indicated much adverse legislation will be faced during the next few months. The opinion was expressed that no one can tell to what extent such proposed legislation will become law. The secretaries discussed ways of carrying on their work with reduced incomes under which all are operating. Associations have cut down major expenses, holding fewer conventions and committee meetings.

John N. Cadby

John N. Cadby, of Milwaukee, was elected chairman of the conference, succeeding John Lapham, of Minneapolis; Thorne Brown, of Lincoln, Nebraska, was named secretary to take the place of A. G. Schroeder, of Grand Rapids, Mich.

Convention Calendar

January

23-25 American Society Heating & Ventilating Engineers
Cincinnati, Ohio

23-27 American Institute of Electrical Engineers
New York, N. Y.

February

14-15 Midwest Regional Gas Sales Conference
Hotel Sherman, Chicago, Ill.

16-17 New England Gas Association
Boston, Mass.

March

7- 8 Oklahoma Utilities Association
Hotel Biltmore, Oklahoma City, Okla.

16 New Jersey Gas Association
Walt Whitman Hotel, Camden, N. J.

27-31 American Society Civil Engineers
Miami, Fla.

April

21 Maryland Utilities Association
Lord Baltimore Hotel, Baltimore, Md.

27-29 Missouri Association of Public Utilities
Elms Hotel, Excelsior Springs, Mo.

May

2- 4 A.G.A. Southern Regional Sales Conference
Washington, D. C.

2- 4 Southern Gas Association
Washington, D. C.

2- 5 Chamber of Commerce of United States
Washington, D. C.

May 30 to June 2 Institution of Gas Engineers (British)
Liverpool, England

September

18-19 Canadian Gas Association
Ottawa, Ontario

Wk. 25 American Gas Association
15th Annual Convention, Stevens Hotel, Chicago, Ill.

Monthly Summary of Gas Company Statistics

FOR MONTH OF OCTOBER, 1932

Issued December, 1932, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE STATISTICS OF 206 MANUFACTURED GAS COMPANIES FOR THE MONTH OF OCTOBER, 1932

	Month of October			*Ten Months Ending October 31*		
	1932	*1931*	*Per cent Increase*	*1932*	*1931*	*Per cent Increase*
Customers						
Domestic	8,694,878	9,037,649	— 3.8			
House Heating	51,270	45,563	12.5			
Industrial and Commercial	401,006	402,475	— 0.4	*See October*		
Miscellaneous	8,240	6,645	—			
Total	9,155,394	9,492,332	— 3.5			
Gas Sales (MCF)						
Domestic	21,608,984	22,504,723	— 4.0	212,297,220	218,412,997	— 2.8
House Heating	706,323	559,142	26.3	14,611,316	14,078,474	3.8
Industrial and Commercial	5,633,700	6,331,025	—11.0	60,148,954	68,515,194	—12.2
Miscellaneous	191,355	189,339	—	1,703,693	1,756,024	—
Total	28,140,362	29,584,229	— 4.9	288,761,183	302,762,689	— 4.6
Revenue (Dollars)						
Domestic	25,007,721	26,327,294	— 5.0	246,838,519	255,261,396	— 3.3
House Heating	537,341	473,430	13.5	10,534,843	10,991,648	— 4.2
Industrial and Commercial	4,851,333	5,493,095	—11.7	52,208,074	59,538,094	—12.3
Miscellaneous	134,335	132,950	—	1,180,897	1,341,243	—
Total	30,530,730	32,426,769	— 5.8	310,762,333	327,132,381	— 5.0
Gas Produced and Purchased (MCF)						
Gas Produced						
(a) Water Gas	12,667,066	14,538,434	—12.9	130,760,171	149,614,083	—12.6
(b) Retort Coal Gas	2,288,613	2,766,027	—17.3	23,507,591	27,425,527	—14.3
(c) Oil Gas	385,492	581,688	—33.7	6,036,798	6,126,803	— 1.5
(d) Coke Oven Gas	4,141,335	4,581,386	— 9.6	39,253,738	44,565,121	—11.9
(e) Reformed Oil Still Gas	397,928	408,881	— 2.7	3,882,009	3,659,618	6.1
(f) Total Gas Produced	19,880,434	22,876,416	—13.1	203,440,307	231,391,152	—12.1
Gas Purchased						
(a) Coke Oven Gas	7,734,448	8,670,709	—10.8	74,960,721	88,613,345	—15.4
(b) Oil Still and Natural Gas	4,334,986	1,610,646	—	37,073,256	5,016,231	—
(c) Total Gas Purchased	12,069,434	10,281,355	17.4	112,033,977	93,629,576	19.7
Total Gas Produced and Purchased	31,949,868	33,157,771	— 3.6	315,474,284	325,020,728	— 2.9

COMPARATIVE STATISTICS OF 205 NATURAL GAS COMPANIES FOR THE MONTH OF OCTOBER, 1932

Customers						
Domestic (Including House Heating)	4,476,404	4,553,648	— 1.7			
Commercial	226,032	216,025	4.6			
Industrial	16,859	16,414	2.7	*See October*		
Main Line Industrial	4,818	5,108	— 5.7			
Miscellaneous	1,639	1,785	—			
Total	4,725,752	4,792,980	— 1.4			
Gas Sales (MCF)						
Domestic (Including House Heating)	15,628,944	14,978,258	4.3	215,499,113	229,953,366	— 6.3
Commercial	2,695,150	2,268,478	18.8	34,898,371	34,853,247	0.1
Industrial	15,170,357	16,542,578	— 8.3	146,383,220	163,868,406	—10.7
Main Line Industrial	12,843,076	16,599,708	—22.6	116,363,741	146,090,781	—20.3
Miscellaneous	717,476	542,333	—	5,384,235	5,818,077	—
Total	47,055,003	50,931,355	— 7.6	518,528,680	580,583,877	—10.7
Revenue (Dollars)						
Domestic (Including House Heating)	11,675,387	11,472,779	1.8	152,076,543	160,759,328	— 5.4
Commercial	1,343,571	1,212,599	10.8	16,988,647	17,456,542	— 2.7
Industrial	3,082,817	3,528,594	—12.6	30,773,813	37,937,820	—18.9
Main Line Industrial	1,488,837	1,986,946	—25.1	13,913,075	18,733,394	—25.7
Miscellaneous	98,242	65,186	—	854,480	811,598	—
Total	17,688,854	18,266,104	— 3.2	214,606,558	235,698,682	— 8.9

Gas Utility Revenues Stabilize During October

REVENUES of manufactured and natural gas utilities aggregated $48,219,584 in October, a decline of less than 5 per cent from the figure of $50,692,873 reported for October, 1931, according to data received from companies representing more than 90 per cent of the public utility distribution of manufactured and natural gas.

This decline in revenues was the smallest reported for any month since March, 1932, and was due in large part to the relatively better showing made by the natural gas companies during October. While revenues of the manufactured gas companies fell from $32,426,769 in October, 1931 to $30,530,730 in the same month of 1932, a decline of nearly 6 per cent, the natural gas utilities reported revenues of $17,688,854 for October, 1932, which were only 3 per cent below the same month of the previous year. This represented the smallest decline in natural gas company revenues reported since May, 1931.

Sales of natural gas for domestic purposes registered an increase of 4.3 per cent during October, while revenues from domestic sales increased by nearly 2 per cent. Natural gas sales to commercial establishments such as hotels, restaurants, etc. increased about 19 per cent during the month, while revenues from commercial sales gained 11 per cent. This expansion in domestic and commercial sales was offset however by continued declines in gas sales for industrial purposes. For October natural gas industrial sales were down 8 per cent while revenues declined 13 per cent.

The increase in natural gas sales and revenue, particularly for domestic uses, was most pronounced in the mid-continent and southwestern sections of the country, embracing such states as Kansas, Oklahoma, Louisiana and Texas. In the eastern and mid-west states such as New York, Pennsylvania, West Virginia and Ohio natural gas sales and revenues were substantially below those of a year ago, while in California October revenues from natural gas sales were down 8 per cent.

Continuous Glass Furnace and Automatic Bottle Forming Machines

(Continued from page 17)

3. Transfer from one table to another. Vertical axis of blank mold on first table same as that of blow mold on second table. First opens and second closes on the glass blank.

4. Finished neck cooled with air at this station.

5. Blow head drops and air at 40 lbs. forces glass to fill out mold.

6. Finished at this station, with more air pressure.

7. "Takeout" jaws transfer finished bottle to traveling belt conveyor which takes it to the annealer.

At the discharge end of this conveyor the bottles are inspected and carefully weighed for the weight of the bottle indicates its capacity. The annealer is continuous and automatic in operation, is 97 ft. long and 43 in. wide. It is constructed of cast-iron sections covered with sheet steel and insulated, and contains a traveling belt conveyor of wire mesh, which is operated by motor. Under the discharge end is a separate heater, fired with a single gas burner, and air heated here is forced into the lehr through a duct which is made up of cast-iron sections, four the same width as the lehr, and four in. high. This duct forms the bottom of the lehr and extends for 75 ft. in it, and ends in a stack to the outside. The remaining length of the lehr is cooled by fresh air blown in through a series of pipes. There are other lehrs also in this plant.

A further explanation of the temperature control on the glass furnaces might be interesting right here. The manifold or gas supply line to the five burners has a valve in it which is adjusted manually for the smallest flow of gas. There are two bypasses around this, both closed with solenoid valves, one adjusted for the medium flow and the other for the maximum flow of gas, when wide open. The current that operates these valves is turned on and off by a potentiometer type of pyrometric control connected to a thermocouple within the furnace. The actuating means used in conjunction with the valves is the deflection of a galvanometer through the varying current induced in the thermocouple by the difference in the heat. The desired temperature is set on the galvanometer and the deflection of the needle from this, makes contacts that energize relays which operate the solenoid valves.

A complete machine shop, located in one end of this plant, is used to make the molds for varying types and kinds of glass containers.

Book Reviews

(Continued from page 25)

grams which were adopted. It includes reports on technological developments; legislation, standards and objectives; organization programs, education and service; and housing research. It also includes part of the reports of committees not covered elsewhere, and consequently the book is somewhat heterogenous.

The book is an interesting commentary on what took place at this conference, in the section on technological developments. A great deal of ado, for example, was made on the rammed earth construction, without particularly stating why such a construction would be advantageous. It is the opinion of this reviewer that the conference suffered from the introduction of many individual objectives which assumed importance of undue proportion in view of their inclusion in this conference report. As the editors acknowledge in the introduction, "A period of economic depression is a poor time to raise funds for following up the findings of a study of this magnitude."

The Handbook of Butane-Propane Gases. First Edition. Edited by G. H. Finley. Pub. by *Western Gas.* 279 pp. 9 x 12. Boards. $5.00.

The present work attempts for the first time to bring under one heading the entire subject of liquefied petroleum gases, including history, production, transportation and their uses, as well as appropriate chapters devoted to the physical and chemical properties and analysis of these gases. The high standing of the editors of the thirteen chapters in their respective fields should lend authority to the material which has been presented.

The last six chapters of the book are probably of greatest interest to those in the manufactured gas industry, since they cover the use of butane and propane with manufactured gas in central plants for butane-air and undiluted vapor service, and lastly the use of liquefied petroleum gases in gas burning appliances.

Chapter 10 on liquefied petroleum gases as an industrial fuel points out a very significant item in connection with the use of butane in industry. Speaking of high pressure combustion systems, it is said "Butane, having a high B.t.u. content and consequently a high air to gas ratio, cannot be used directly in its undiluted form for high pressure gas combustion systems."

Unfortunately, there are no figures given in the book on the cost of setting up a butane installation. This makes it impossible to use the material as a basis for estimating comparative costs.

A final chapter is devoted to the distribution of bottled gas, and in this section some very interesting and useful cost figures are given for the purpose of establishing the conditions under which bottled gas distribution becomes economically profitable in any given territory.

—C. G. S.

Gas Appliance and Equipment Developments

The Majestic Manufacturing Company, New York, and the Union News Company were hosts to gas company executives and others at breakfast November 28 in the Union News Company's restaurant, Grand Central Terminal, which was the occasion of a celebration over the installation of a new gas range.

This is a Majestic 8-unit "SuperServis" Heavy Duty range, suitable for cooking 4200 or more daily meals.

The equipment includes one big broiler and two salamander broilers. Also three "Fryalators" which permit fish or meats to be dipped in very hot grease, forming an immediate crust so that the juices of the meat are retained and imprisoned while cooking in the oven.

The range is insulated thus making for coolness in the kitchen. The front, back and sides of the oven flues are lined with a heavy thickness of rockwool.

Another feature important to a large establishment catering to thousands of patrons daily is the set-up of the cooking top of each unit. The baffle plates so direct the heat that boiling may be accomplished on every square inch of the surface and there is room for six to eight pots in each unit.

There are easy cleaning features and the oven door forms a strong shelf capable of supporting 1000 pounds.

Joins Century Stove Co.

Joe Taylor has been appointed sales manager of the Century Stove and Manufacturing Company, Johnstown, Pa. Starting with the old Sing Sing Gas Company, at Ossining, N. Y., in 1892, he entered the sales department of the William M. Crane Co., a year later. After four years of selling, he held various positions in the gas business until 1910, when he became the southern salesman for the Estate Stove Company; in 1916, he became sales manager of the Baltimore Gas Appliance and Gas Manufacturing Company. When this company and the William M. Crane Company merged, he joined the Walker & Pratt Manufacturing Company of Boston, as sales manager of the gas department.

Lambert Issues Bulletin

The Lambert Meter Company, Brooklyn, N. Y., announces the issuance of a new bulletin entitled "Meter Repair Parts for All Makes and Sizes of Meters." This bulletin shows illustrations of many new additional parts which can be supplied by the Lambert Meter Company. Copies of this bulletin will be mailed upon request.

New Purox Welding Torch

The Linde Air Products Company, 30 East 42nd Street, New York, N. Y., has announced the addition of a new welding torch to its Purox line of oxy-acetylene apparatus. Designated as the Purox No. 28 Welding Torch, this new torch has the same wide range of usefulness, and the same high efficiency and economical gas consumption as the Purox No. 20 Torch, but is somewhat different in design. Its utility is such that it will handle heavy-duty work as easily as the average job.

Contributions of news items by manufacturers of gas appliances and equipment to this department will be welcomed by The A. G. A. Monthly. On account of space limitations, all announcements of new products, improvements, etc., should be limited to about 100 words. No attempt will be made to describe each product or give details of construction. For such details address the manufacturer direct. Where justified, photographs will be used to illustrate these brief items. All contributions to this department should be addressed to C. W. Berghorn, Secretary, Manufacturers' Section, American Gas Association, 420 Lexington Ave., New York, N. Y.

Connersville Meters

The Connersville meter is known to the trade as a positive displacement type. They are built in a wide range of sizes, many having a normal rating at 75 lbs. pressure of well above 30,000 cubic feet per minute at 1 inch differential, and all being commercially accurate over a range of from 10% to 150% of normal ratings, and operating on a differential not exceeding 2 inches.

Special attention is called to the 8 x 12 size, in the high pressure type.

Goes to Baltimore

Walter F. Perkins, who has been manager of the Harrison, New Jersey, Works of the Worthington Pump and Machinery Corporation since 1927, has resigned to become vice-president and general manager of The Bartlett Hayward Company, Baltimore, Md. Mr. Perkins is succeeded as works manager at Harrison by Hugh Benet, who was formerly Manager of Worthington's Holyoke, Mass., Works.

Bulletin on New Bailey Fluid Meters

An attractive 24-page bulletin, No. 300, describing the new line of Bailey Fluid Meters now available, has been published by the Bailey Meter Company, Cleveland, Ohio. Numerous illustrations are included in the bulletin, comprising detailed drawings, diagrammatic sketches, equipment photographs, installation photographs, and chart reproductions in four colors.

New Line of Moore Ranges

The Moore Corporation, Joliet, Ill., has issued bulletins covering features of new heaters for coal and gas, and new gas ranges, recently put on the market. Copies of these booklets will be sent upon request.

Southern Gas Association

(Continued from page 15)

ence reflects, to a great extent, the activities of the Commercial and Industrial Sections, and has the active support of the American Gas Association. This activity is one of the outstanding features of the Association's annual meeting.

The 1933 Convention, to be held in Washington, D. C., on May 2, 3 and 4, will be the Silver Anniversary Meeting of the Association: it will be the occasion for the celebration of twenty-five years of earnest effort in the interest of the industry in the South.

All Gas Cookery at National Food Show

(Continued from page 4)

prised at the real interest displayed in their products by the visitors to the Exposition.

Credit for the success of the Exposition itself is pretty evenly divided between the directors of the Exposition and the hotel and restaurant owners and managers who helped make it a success. But credit for the full representation of the gas industry in the Exposition—which is equivalent to obtaining the unqualified stamp of approval of the users of commercial cooking equipment—properly belongs to Thomas J. Gallagher, head of the Hotel and Restaurant Division of The Peoples Gas Light and Coke Company, who almost single-handed switched the Exposition over from competing fuels, and with the assistance of alert manufacturers of gas cooking equipment, made it a real "all gas" show.

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—Hugh McNair, Winnipeg Electric Co., Winnipeg, Man.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—Alfred H. Schoellkopf, Niagara Hudson Power Corp., Buffalo, N. Y.
Chairman, Gas Section—F. C. Weber, The Brooklyn Union Gas Co., Brooklyn, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—Bernard J. Mullaney, The Peoples Gas Light & Coke Company, Chicago, Ill.
Sec.—J. R. Blackhall, 617 Public Service Bldg., Springfield, Ill.

Indiana Gas Association
Pres.—R. S. Brunner, Richmond, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—J. E. Spindle, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.
Sec.—D. E. Kinnear, 803 Court Square Bldg., Baltimore, Md.

Mid-West Gas Association
Pres.—W. E. Derwent, Geo. D. Roper Corp., Rockford, Ill.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—A. E. Bettis, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—I. T. Haddock, Cambridge Gas Light Co., Cambridge, Mass.
Ex. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.
Chairman, Operating Div.—H. G. Taylor, Lawrence Gas & Electric Co., Lawrence, Mass.
Sec., Operating Div.—R. S. Carter, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Sales Div.—J. J. McKearin, Lowell Gas Light Co., Lowell, Mass.
Chairman, Industrial Div.—C. S. Hilton, The Pawtucket Gas Co., Pawtucket, R. I.
Sec.-Tr., Industrial Div.—W. S. Anderson, Boston, Mass.
Chairman, Accounting Div.—G. S. Lees, New Haven Gas Light Co., New Haven, Conn.
Sec.-Tr., Accounting Div.—C. D. Perkins, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Manufacturer Div.—A. M. Slattery, The Hoffman Heater Co., Boston, Mass.
Sec.-Tr., Manufacturers Div.—J. H. McPherson, James B. Clow & Sons, Boston, Mass.

New Jersey Gas Association
Pres.—J. D. Alden, Jersey Central Power & Light Co., Asbury Park, N. J.
Sec.-Tr.—H. E. Cliff, Public Service Electric & Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—R. J. Daugherty, The Empire Companies, Bartlesville, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—Harry L. Masser, Los Angeles Gas and Electric Corp., Los Angeles, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—Lewis W. Heath, Pennsylvania Power & Light Co., Williamsport, Pa.
Sec.-Tr.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—J. French Robinson, Lycoming Natural Gas Co., Pittsburgh, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—J. J. Brennan, Memphis Power & Light Co., Memphis, Tenn.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

Southwestern Public Service Association
Pres.—Knox Lee, Southwestern Gas & Electric Co., Marshall, Texas.
Sec.—E. N. Willis, 530 13th Street, SE., Brownsville, Texas.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—E. J. Steinberg, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

Fifteenth Annual Convention of the American Gas Association
Chicago, Ill. - - - Week of September 25, 1933

Personnel Service

SERVICES OFFERED

Improving plant results is specialty of **engineer** having broad international experience with two of the largest gas engineering and construction companies. Thoroughly familiar with design and operation of most modern plant equipment; broad experience in development of apparatus and a wide acquaintance with the gas fraternity. **638.**

Young (single) aggressive combination company **salesman** with unusual record of filling established merchandise quotas for both gas and electric equipment; held first place in competitive sales program of organization. Thoroughly familiar with all domestic and commercial appliances; available for utility company or equipment manufacturer. Specialty is contacts and closing. **642.**

Local or district **manager,** or commercial manager; engineering graduate (39); have been superintendent of manufacture and distribution; two years on staff of state public utility commission; five years commercial manager of company with 140,000 meters where appliance sales were almost quadrupled. **644.**

Executive-engineer (40) N. Y. license, member A. S. M. E., available for investigations, reports, rate studies, valuation, promotional work, organization of construction and operating forces or general executive assignment. Many years successful utility experience both with independent and holding companies. **648.**

Gas engineer, twenty-five years' experience all branches construction operation, rates, management, appraisals and reports, including combination gas and electric plants with responsibilities in both departments. Half of time central office holding company engineer supervising group of plants. Familiar with heavy oil water gas operation and natural gas distribution. **649.**

Gas engineer, technical education, twenty years' practical experience in both manufactured and natural gas. Intimate knowledge of all details of production, operation, distribution and valuation. Successful public service commission and Federal Court experience in rate cases. **656.**

House Heating engineer (24) graduate of a gas engineering school (B. S.), with advanced work in gas engineering and heating and ventilating. Has two years' experience in house heating. Desires employment in either house heating or industrial sales work. **658.**

Industrial gas **sales** engineer experienced in both manufactured and natural gas desires location in an Eastern property within 200 to 300 miles of New York City. Fully experienced in house heating and domestic appliances as well as in the design of industrial furnaces. Married. Now employed. **659.**

Merchandise manager, straight percentage basis with authority to extend similar policy all possible items of present sales department, fixed expense including branch leaseholds. Experienced in branch, distributor and dealer distribution, budgetary control conversion gas burners, domestic oil burners, mechanical refrigerators and automotive vehicles throughout U. S. **660.**

Gas engineering graduate, specialized training in utility operation, several years' experience with leading mid-west gas company, desires employment in production, distribution or sales (23) married, will go anywhere. **662.**

Advertising manager or **writer,** experienced in all phases of gas and electric company advertising and publicity, with an excellent record of effective, profitable advertising for practically every appliance or service. Competent to assume full charge of an advertising department. **663.**

Graduate **engineer** experienced in design and operation by-product coke plants, gas plants and distribution systems in U. S. and Canada. Capable taking charge or can fit into present organization. Experience should make this man valuable where training, strong personality and honesty count. **664.**

Manager—experienced in manufactured and natural gas and electricity with splendid new business record. Full particulars will be furnished on request. **665.**

SERVICES OFFERED

Sales engineer—qualified for sales and management of house heating department in all its branches of service. Experience also covers industrial steam boiler application and large volume water heating. General and technical knowledge. Married. **666.**

Sales executive. Man of unusual experience in sales management and merchandising in various lines; forceful convincing personality; knows intimately most successful methods of sales promotion and personnel direction, market analysis sources and planning including budget sales production; experienced advertising supervision; special knowledge appliances; married, American, university trained, 47 years. **667.**

Gas engineer (27) engineering graduate, married, desires position with large gas company as assistant to plant or distribution superintendent, or can take complete charge of operation of small gas company. Excellent record of results obtained and have had extensive experience with practically all phases of gas operation. **668.**

Safety engineer. Graduate E. E., age 39, married. Nine years' experience. Four years servicing industrial risks of large casualty insurance company, five supervising safety program of gas and electric utilities. Capable of handling accident prevention work, including personnel and insurance details, for utility or insurance company. Available in 60 days. **669.**

Sales advertising—Fifteen years in agency and public utility field. Experienced in appliance merchandising and dealer cooperative advertising for combination properties. Coordination of advertising policy, employee education and customer contact services. **670.**

Technical Graduate, single, class of 1931; specialized in gas and chemical engineering. Have had experience in industrial concerns and in testing commercial heating equipment at a university experiment station. Willing to go anywhere and interested in any future possibilities. In the East at the present. **671.**

Gas engineer (35) technically trained, thirteen years operating coal, water and producer gas plants and doing research on coal carbonization and coke utilization. **672.**

Industrial **gas engineer** since 1905. House-heating, power plants, industrial furnaces, with artificial gas, natural gas, oil, producer and blast furnace gases. Fuel efficiency engineer for steel plants, period of six years in United States, Canada and Europe. Five years' agency for oil burners. Sales and engineering experience. **673.**

Technical manager, superintendent or engineer, with broad experience of twenty years, covering manufactured and natural gas transmission, re-forming, blending, change-over, high and low-pressure distribution and lay-out. Familiar with brushing up sluggish activity or run down properties of holding company. Sales service and utilization. Aggressive. **674.**

Mechanical and electrical graduate engineer, nine years' miscellaneous public utility and manufacturing experience, embracing design and operation; last four years in design, installation and sales work on gas-operated air conditioners, dehydration and purification units and kindred equipment. Recently in charge of air-conditioning work which included highly original research. **675.**

Industrial gas: Fuel engineer and salesman, with exceptional training and unusually broadening experience, now employed, seeks management of industrial department for large utility or of directing institutional work in heat utilization. **676.**

Successful record of sixteen years in property **management** and sales promotion. Several years in Latin American Countries; speak Spanish and understand customs of those countries. Age 37—married. Available to go anywhere. **677.**

Manufacturer's Agent: Old and established coal and gas range manufacturer, having discontinued gas range manufacture desires agency Metropolitan New York for complete line ranges, combinations, water heaters, other gas appliances. Have complete sales organization, showroom, warehouse, shipping and servicing facilities. Valuable utility contacts including jobbers, dealers and real estate operators. **678.**

Heating engineer—experienced in all kinds of house heating equipment, including conversion burners, gas boilers, gas furnaces as applied to gravity and forced air heating, including air conditioning. Capable of handling both sales and engineering. **679.**

Accountant experienced four utilities, gas, electric, street railway, omnibus; college graduate; age 39; thorough knowledge all phases utility accounting; secretary-treasurer comptroller, eleven years; purchasing agent, eight years; wishes assignment operating company or travelling auditor; will prove merit for advancement. **680.**

SERVICES OFFERED

POSITIONS OPEN

Gas **appliance salesmen** wanted. Those having utility sales experience preferred. We have an unusually attractive proposition for men who can show a clean, business producing record. We virtually put you in business for yourself. Line now established and in active demand, assuring an income from the outset. Stocks are carried and sales financed. No investment required. Straight commission. No drawing account. Contracts now being made. Desirable openings available in practically every state. **0249.**

An unusual business **opportunity:** Nationally known manufacturer of gas fired heating and air conditioning equipment is interested in making connections for Ohio and Western Pennsylvania territories. Established organizations dealing in mechanical lines or individuals having necessary qualifications will be considered. Large profits possible in an industry with a most attractive future. **0251.**

Advertising man for a public utility to prepare complete newspaper advertisements. Ability to do creative advertising and copy work is essential and previous public utility experience is desirable. Give full details of personal and professional qualifications also submitting samples of recent newspaper copy. **0253.**

GOOD MEN AVAILABLE

The number of good men briefly advertising their qualifications is limited by space requirements. We have many others and all are supported by confidential classification records showing details of education, experience and personal qualifications.

Further, a "Positions Open" advertisement will reach numerous other qualified individuals throughout the industry; inserted without charge, and keyed to maintain complete anonymity you may tap a supply that cannot fail to furnish the right man.

We can, and do, regularly submit lists of men capable of meeting the diversified requirements of both gas company and manufacturer members; we function also as a clearing house, all negotiations being quite confidential, *but there are still more men than jobs.*

Permit us to help by placing an advertisement or by furnishing names and qualifications of men for all branches and assist in stepping up the morale and bringing renewed hope to many an unfortunate victim of economic conditions.

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